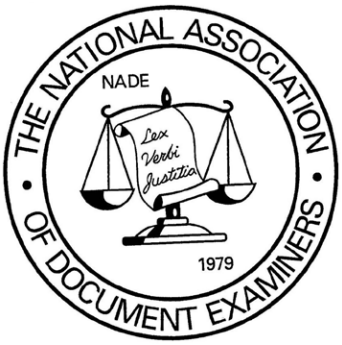

Journal of the National Association of Document Examiners

Volume 32, Fall 2019

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Journal of the National Association of Document Examiners

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Editorial

by

Reed Hayes, CDE

I'm honored that NADE President Linda James has once again appointed me Editor-in-Chief of the Journal. I'm especially proud to be part of this endeavor, as this year marks NADE's 40th anniversary.

As early as 1979, handwriting and document examiner Phyllis Cook of Philadelphia had a vision for a new document examination group that would not require applicants to have first undergone apprenticeship and that would be amenable to both seasoned and novice examiners. As related in Karl Schaffenberger's piece about NADE's beginnings (which follows my editorial), there were 19 founding members of which Karl is the only known survivor.

NADE has grown from humble origins to a world-class organization with international members. As with any family, there have been stumbling blocks and disagreements along the way, but these challenges have helped NADE mature into the professional group it is today.

Anniversaries are occasions to look forward as well as back. As forensic document examiners in an ever-changing world, we must keep abreast of technological changes that make for easier forgery and document alterations, but also provide us with the tools to more effectively evaluate handwriting and document issues. Sharing our knowledge and experiences in the forensic document examination field is pertinent to our growth, both as individual examiners and as an organization.

I trust the articles in this issue of the Journal—contributed by NADE members as well as non-members—will serve to enrich readers' knowledge and skills. I appreciate the time and effort that each of the contributors has put into their work, as well as their patience in dealing with the editing of their articles.

Michael Wakshull offers a well-considered article about various types of bias and what we can do to avoid bias and approach our work objectively.

Marcel Matley's piece is a critical review of a published opinion in which a document examiner failed to discover and report a triable issue regarding a material fact. Marcel focuses on the importance of creating meaningful and accurate reports that may be relied upon in summary judgment motions.

Jacqueline Joseph provides an in-depth follow-up article to her 2004 NADE publication regarding left-hand and opposite-hand writing features as a basis of forming opinions of authorship. Her article is accompanied by a well-researched and extensive annotated bibliography.

Paper forensics expert Doug Cobb contributes an informative technical piece pertaining to the use of the color spectrophotometer in differentiating between paper sources.

NADE Diplomate Ruth Holmes, in collaboration with her daughter Sarah Holmes Tucker, gives us an article regarding notarized signatures with general information about what is required of notaries public and offering three case studies in which notarized signatures were questioned.

Kathryn Kohler, who holds a graduate certificate in forensic document examination from East Tennessee State University, presents the results of her research into various techniques for developing indented writing on paper.

This issue of the Journal includes my review of recent contributions to the forensic document examination field by NADE members including Michael Wakshull, Jacqueline Joseph, Heidi Harralson and Larry Miller. The editorial staff feels it is important to showcase such contributions, and encourages other members to report their own efforts at advancing the field, for inclusion in future publications of the Journal.

This issue also contains an index of articles previously published in the Journal, edited by

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NADE member Anne Smith. The citations in the index were drawn from *The QDE Index: A Guide to Periodical Articles in English on Document Examination, Handwriting Expertise and Expert Testimony* by Marcel Matley.

Creation of this issue of the Journal has been challenging yet rewarding. I have relied heavily on my editorial staff to read through submissions, suggest edits, and pose questions to contributors for clarification. Without their support this issue would not have been possible. I thank all of them profusely for their assistance. I also want to acknowledge the invaluable input of Sarah Koch of Portland, Oregon, who has spent countless hours reviewing submissions, proofreading material, and offering editorial advice. With her fine eye for detail, Sarah has been hugely instrumental in taking this publication to a higher level.

Moving forward, I encourage NADE members to consider submitting articles for future editions of the Journal. Sharing your knowledge, expertise, and experience—whether it be in the form of a case report, technical piece, book review, or annotated bibliography—will be a rewarding experience for you as well as enriching to readers. Guidelines for submission of articles is included at the back of this issue.

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NADE—A Look Back

by

Karl Schaffenberger

As best as I can determine, the first official meeting of NADE took place on the 18th of November 1979 in Princeton, NJ, which is still our official headquarters. It was an interesting mix of independent examiners looking for a place to call home. Granted, there were already existing organizations to which we could belong and most of us were associated with at least one, but as non-government professionals we felt our options were limited. So, initially driven by Phyllis Cook (NADE's first 2nd Vice President) and Renee Martin (NADE's first President), we set sail.

My career began on the 14th of September 1975, when Father Norman Werling took me on as his apprentice. My official association with him lasted until January of 1978 when he threw me out of the nest, telling me to "go make a living." We were great friends and close colleagues until his death in March of 1997.

So, when NADE was launched, I had been in the business for four years and on my own for just over two. I had qualified and testified several times, was 29 years old, and thought "how hard can this possibly be?" Well, it was hard.

Initially there were 19 NADE members. The actual founders were Phyllis Cook (NADE's first 2nd Vice President), Glenside, PA; Renee Martin (NADE's first President), Princeton, NJ; Father Norman Werling, Paramus, NJ; and Karl Schaffenberger, Dumont, NJ.

The original members were Karl Aschaffenburg (not me), a wheelchair-bound German immigrant residing in Princeton, NJ; Edward Bones, Elmira, NY; Florence Cellini, Baldwinsville, NY; Rita Cole, Wayland, NY; Marie Dooney, Lincoln Park, NJ; Mary Metzler, Pittsburgh, PA; Jane Mosher, Rochester, NY; Irene Setlak (NADE's first Treasurer), Harrisburg, PA; Paul Stauffer, Ardmore, PA; Herry Testscher (NADE's first 1st Vice President), New York, NY; Stanley Vidinghoff, Rochester, NY; Rae Whitney, Ulysses, PA; Marjorie Writz, Rochester, NY; Geraldine Yocum, Bethlehem, PA; and Helene Zucker (NADE's first Secretary), Harrisburg, PA.

At this point we asked ourselves, "Well now what?" There was much to do. It is a little more

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complicated than just getting stationery. We needed to be incorporated, which called for legal counsel. We needed officers. That required voting, which required procedures. We needed bylaws which required incredible amounts of brainstorming, research, and consensus. We needed a Code of Ethics—more brainstorming, more research, and more consensus. We needed to establish the various types of membership and the qualifications necessary for each and assign the members to manage and administer this aspect of the organization. We needed a newsletter, possibly more difficult then than it is now, which is hard to imagine. We needed a logo, eventually created by my father and myself.

And possibly the most daunting, we decided that we should publish a book documenting every facet of NADE as well as separate chapters relating to all the various components that make up this thing we call forensic document examination. Everyone was assigned a chapter to write and each chapter was submitted to an editorial board for fine-tuning. Some of these topics were "Hand Printing and Numerals," "Typewriter Identification," "Left-hand Writing and Unaccustomed Hand Writing" and "Comparison Exemplars for Handwriting," to name a few.

It was not all smooth sailing. There were, as with any family, disagreements and head-butting. Yet somehow, against some formidable odds, NADE has endured for 40 years, strong and viable. I cannot help but wonder what the other 18 members would think if they could see NADE now. As far as I know, I am the last surviving member of the 19.

Well, we can hear from two of the founding members, Phyllis Cook and Renee Martin. These are their words from the NADE Journal of May 1980, Vol. 1, No. 1:

Founder's Message from Phil Cook

"The National Association of Document Examiners is an organization of which we, who watched it develop from a dream, are justifiably proud. The association holds something for everyone from the most qualified professional to the beginning student.

Phyllis Cook

"Two incidents in particular prompted me to found NADE. First, as a professional document examiner making a living solely from engaging in this work, I felt it strange that membership in another document examiner's organization demanded a three-year apprenticeship. We had experience, references, documentation of cases, courtroom testimony, etc…but they were not sufficient. Now that seemed similar to telling a person with a Ph.D. from one college, 'Sorry, you don't qualify for a membership in our professional society until you get a B.S. degree from our college.' Ridiculous! Secondly, I attended yet another organization's congress and found that several of the lectures were delivered by amateurs. For instance, one man concluded his presentation by saying that he didn't get paid for his services because he loves his work so much that he does it for nothing. How revealing!

"NADE is no longer a dream. It is a reality. It is an established, viable and growing association. The caliber of the membership reads like a 'Who's Who.'

"Add this prestigious association to your professional credits if you are a document examiner. Add

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substance to your activities if you are an interested associate. Join the membership of the National Association of Document Examiners. As the ad says, 'You're going to like it here.'"

President's Letter from Renee Martin

"Welcome! It is exciting to be in on the birthing of a new and important organization. And here we all are!

"Because of the energetic help of Phyllis Cook, the National Association of Document Examiners is now a fact. Phyllis has been talking and working towards this new and innovative association for several years. Now, thanks to Phyllis and several other important people in the document examination field, we have begun.

"By the time you read this Journal, the first annual seminar will be an accomplished fact. Action and reaction to the seminar will be reported in a future issue. The first annual convention will be held at the Henry Chauncey Center ETS (Educational Testing Service) in Princeton, New Jersey on September 20 and 21, 1980.

"You are the people who make up this organization. Your successes and failures are important to us, because not only do you learn from them, but so do we. We want this to be your Journal—a clearing ground of questions, answers and points of clarification.

"Elsewhere you will see a list of chartered members. Professionals and Associates will be working together to make this an outstanding and highly respected organization. One of the ways is to encourage students to take the examination for professional standing. Only in this way will we perpetuate our goals and enable the law enforcement, judicial and legal fields to accept us as a serious association of document examiners. New document examiners prepared with the same background of our Professional members will help expand the entire field of document examination.

"I look forward to seeing you all at the Seminar, and more of you at the Convention. Please speak to me to give me insight into your wants and needs and how you would like the National Association of Document Examiners to work."

So that is our short look backward. We are proud of our origins and our progress over 40 years. We look forward to the next 40 years, and to celebrating our success together.

Karl Schaffenberger, CDE is a court qualified, Certified Document Examiner who has over 40 years experience as a forensic document examiner and handwriting expert. He has qualified and testified as a forensic document examiner in excess of 100 times in various courts of New York, New Jersey, Maryland, and the United States Virgin Islands.

Karl is the only known survivor of NADE's founding members.

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Can Forensic Experts Overcome Their Biases? Is Recognizing Cognitive and Motivational Biases Enough?

by
Michael Wakshull, MSc, CQE

Abstract: Experts make decisions that are expressed as opinions by applying analytical methods developed through training, education, and practice. Such prior experience may induce biases that cause the expert to use trusted methods without considering alternatives. Forensic handwriting and document examiners must recognize when their biases and those of others influence their opinions. What can a forensic expert do to avoid the bias trap?

Keywords: Actual bias, advocate's bias, implied bias, inferable bias, judicial bias, presumed bias, contextual bias, anchoring, confirmation bias.

Black's Law Dictionary defines bias as "[a] predisposition to decide a cause or an issue in a certain way (Garner, 2009)." Prior experiences, learning paradigms, individual beliefs, and other biases can cloud the understanding of what is important. There are two types of biases: cognitive biases and motivational biases (Giannelli, 2008). Cognitive biases occur at the subconscious level and frequently interfere with the ability of people to make good decisions. Motivational biases can occur at the conscious or subconscious level and result from a person's desire to deliver expected results.

Black's Law Dictionary Tenth Edition offers six types of courtroom bias.

1. Actual bias occurs when "[g]enuine prejudice that a judge, juror, witness, or other person has against some person or relevant subject" is present. Examples of this bias: 1) when a person believes a member of an ethnic or racial group holds certain beliefs, 2) a person who has previously been convicted of forgery. Actual bias may cause a document examiner to believe or not believe a document is authentic or not authentic. Actual bias may be induced when a document examiner is given information about the case that is not pertinent to the scope of work. An example is offering information that a suspect has previously been convicted of an offense similar to the one currently being adjudicated.

2. Advocate's bias is present when an advocate for a person or cause becomes too involved with the person or cause being advocated. An attorney's job is to advocate for their client's case. The document examiner is an advocate for the evidence rather than for a party to the case. A document examiner's advocacy is strictly for the evidence.

3. Implied bias (or Presumed bias) can result from relationships among parties. The expert witness must avoid any implied bias by receiving full payment for services ahead of offering testimony. The implied bias is that the expert is testifying in a particular manner to ensure receipt of payment. Implied bias may occur if the expert has a relationship with a party to the case.

4. Inferable bias is bias that does not rise to that of implied bias. A relationship may be inferred between an attorney and the attorney's client. For example, an attorney and his or her client attended the same school, or the document examiner and the attorney are members of the same professional organization.

5. Judicial bias occurs when the judge or trier of fact has a bias in favor of one of the parties in a case. Judicial bias may take the form of the other types of bias.

6. Presumed bias may be synonymous with implied bias. Presumed bias may also be implicit bias. Implicit bias is socially induced bias that people are either unaware of or are unwilling to admit. An example may be when a document examiner believes that people of certain genders, age groups, ethnic groups, religions, or other attributes are more prone than others to commit crimes. This belief may be based upon the document examin-

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er's social upbringing and may not be in his or her conscious awareness.

By applying analytical methods developed through training, education and practice, experts develop opinions as to the interpretation of the examination of the evidence. Prior experience may induce biases that cause the expert to use trusted methods without considering alternatives of investigation. Forensic science seeks to produce reliable evidence which is clearly reported (Sjerps and Meester, 2009). Experts must recognize when their biases and those of others influence their decisions.

Laboratory bias

Forensic examiners work in private, crime, or other types of laboratories. ASTM reported that eighty percent of studied laboratories showed laboratory bias (Lawrey, 2009). Twenty percent of the laboratories displayed "significantly high bias." This bias was the result of interactions among many people. Griffen and Tversky (1992) attributed similar bias to people's tendency toward being more overconfident in their judgments than is warranted by the facts. When we select evidence that is not independent of the forensic analysis, problems occur (Sjerps and Meester, 2009). Schwab (2008) showed that bias induces experts to be overconfident in rating their abilities.

Document examiners must be careful not to overstate the strength of the evidence by opining "identification" or "elimination." The evidence must be exceedingly strong to offer either of these opinions.

The National Academy of Sciences (NAS) (National Research Council, 2009) reported that bias is a severe problem in forensic sciences. Cognitive biases were described as "common features of decision making, and they cannot be willed away."

NAS reported that judges are subject to bias in their rulings. The report cites studies that half the fingerprint examinations had bias introduced into the procedures. A recommendation was made to remove the association of crime laboratories from police agencies to reduce the motivational bias. The expert's bias can be reduced if the expert is not aware of the side which has hired him or her (Baer, 2005).

According to research, awareness of the source of cognitive bias is insufficient to prevent a person from being trapped by biases (Ariely, 2008; Cialdini, 2001). Arzy, et al. (2009) discovered that by including one misleading detail about a patient, the misdiagnosis rate in emergency room cases was ninety percent by practicing physicians. Telling a control group there was one misleading detail did not reduce the diagnostic error. When the misleading detail was omitted from the information, the misdiagnosis rate reduced to thirty percent.

Forensic examiners must sort through evidence so as not to follow the trail of misleading information, resulting in a flawed opinion. An example is when the retaining attorney offers details about the case that are not pertinent to the examination. Details such as a confession, witness's statement, or the place where the evidence was discovered may unconsciously bias the forensic examiner's perception of the authenticity of the evidence in question.

As document examiners, we make an assumption that the known signatures were truly written by the person who allegedly wrote them. A means of accounting for this assumption is stating in the opinion words such as "… the questioned signature was written by the person who wrote the known signatures." This verbiage addresses the author of the signatures rather than the person who allegedly wrote the known signatures by name.

Contextual bias

Research shows that document examiners who work for the government tend to focus on differences in writing, whereas private practice document examiners tend to focus on similarities in writing (McAlexander, 1999). The reason for this difference of approach is the government examiners typically are retained by the prosecution. The prosecution's emphasis is convicting people accused of having committed crimes. In criminal

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matters, the private examiner is typically retained by defense counsel. The defense's focus is exonerating the accused party. Each case is an example of contextual bias. In a recent civil evidentiary hearing an examiner admitted his report only focused on similarities of the handwriting. No statement about the differences was offered. The side that retained him claimed the signature was written by the person whose name appeared on the document. The person claimed she did not write the signature.

In deposition, a certified document examiner with 40 years of experience stated, "When you're conducting an examination, look primarily for differences. We don't look for similarities. That's a common error by students that I've taught and the people I've trained. You look for the differences."

This is a clear statement of bias in the examiner's methodology. A science-based approach examines both sides of the evidence. The similarities and differences are weighed to determine which outweighs the other. If each has equal weight, the examiner's opinion should be inconclusive.

Anchoring

Research shows that when a person is exposed to a concept, they anchor to the concept at a subconscious level. Being exposed to the context of a case may cause the forensic examiner to anchor to that context. Anchoring is the psychological tendency to set the given context as the starting point for thinking. As an example, when a person sees the price of a product, that price becomes the anchor from which they determine the price shown for the product by other merchants.

Fingerprint examiners were presented with cases in which they were told the suspect had been erroneously identified. Peer review was required. Four of the five review examiners excluded the suspect. In each instance, the examiner was presented with fingerprints they had identified as the suspect's prints in cases years earlier (Droor, 2010). Being given the context that the suspects were incorrectly identified caused the examiners to anchor to the context of erroneous identification.

Bias begins early in the investigation

Bias starts when a forensic examiner is hired by an attorney. An example of this is an attorney approaches the document examiner saying, "I have a case where my client claims they did not sign this check," or "My client claims they did not sign this contract." These statements set the foundation for cognitive, or subconscious, bias. One of the jobs of a document examiner is to disengage from the bias. This can be done by taking a step back from the scope of the examination request and focusing on the evidence. Application of an objective scientific approach reduces cognitive bias.

The document examiner cares about the writing on the document, potential alterations, or other attributes of the scope of the analysis. The context of the case is the purview of the retaining attorney, not the document examiner.

The less information the attorney provides to the examiner about the theory of the case, the more objective the results are likely to be. As a document examiner, your only point of interest is the evidence specific to your examination. Specifics of the origin or history of the evidence may be requested if it is pertinent to examination of the evidence. An example is a case in which a party stated the reason the person's signature changed was due to brain surgery. Examination of the medical literature showed surgery on this portion of the brain has no effect on handwriting. Therefore, the signature had probably not changed due to surgery.

None of us wants to feel our opinions are tainted by bias. The ability to recognize when bias is an influence in an expert's opinion and the skill of an expert to overcome his or her biases is integral to an expert's credibility.

Framing the problem

The presentation of information is known as framing. When a problem is framed in a manner that appears to be logically sound, the problem solver accepts the framing and attempts to solve the problem in conjunction with the way the problem is framed (Bernstein, 1996).

A study testing the impact of framing a situa-

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tion and then adding additional information about the decision that is to be made was conducted at Stanford University. The study exposed how bias creeps in and affects judgment. In the study, subjects were given sufficient information regarding a courtroom trial (Kahneman and Tversky, 1995). One group was given more detail regarding the defendant, and another group was given additional information regarding the plaintiff. Although the groups knew the data was biased, they were unable to mentally balance the information. The biased group was more confident about the outcome in favor of the side whose information was more voluminous than the group with balanced information (Kahneman and Tversky, 1995).

Bias of juries

Webber (2008) reported, "Juries…typically base their decisions on whichever story seems most plausible to them, rather than weighing the evidence." These decisions are made regardless of whether the information is accurate. McAuliff, Kovera, and Nunez (2009) expanded on Webber's findings, stating that when jurors' motivation is low or their ability to understand the presented information is poor, they rely on heuristics and that which they understand as real-life situations (McAuliff, et al., 2009). McAuliff, et al. discovered that jurors are "insensitive to the presence of a confound or experimenter bias in the expert's research." The jurors relied on their flawed analysis of the expert's evidence when rendering a verdict.

A sharp attorney can bias a jury by framing questions to the witness. Framing bias can cause the jury to view the expert as qualified or not qualified. McAuliff, et al. (2009) found a positive relationship between verdicts and juror's evaluation of expert's evidence. McAuliff reported that jurors are not able to evaluate statistical evidence and methodologies. He also reported that "Judges are unable to differentiate between valid and junk science… leading to, admission of invalid research at trial." The forensic examiner must reduce these potential biases by presenting clear and easy to understand evidence to support an opinion. The evidence supporting the opinion and evidence contrary to the opinion must be presented. A clear analysis in lay language must be presented explaining why one side of the analysis is more persuasive than the other side.

Confirmation bias

Confirmation bias results when a person accepts evidence that supports their position and rejects evidence that does not support their position. An example of confirmation bias occurred in a court case requiring authentication of a will. The plaintiff's document examiner had forty-three exemplars. He showed seven of the exemplars in his report. By using only seven exemplars he offered an opinion the decedent did not author the questioned signature. After evidence was exchanged, defense's examiner used his other thirty-six exemplars to create exhibits that contradicted his opinion. The decedent had wide variability in his signatures. The Court agreed with the defense examiner's testimony.

Many forensic examiners are sole proprietors. They tend to interface directly with the retaining party. As a result, they must be vigilant not to be swayed by the claims of the attorney's client. The evidence is all that matters. This approach reduces the effects of confirmation bias. Since merely being aware of bias does not reduce the bias, the examiner must take conscious steps to do so. A method of reducing such bias is not recording the desired outcome from the attorney or not recording which side of the case is retaining you.

A method to reduce bias

Simply being aware of potential bias is insufficient to eliminate the bias. The best way to reduce bias is to avoid requesting unnecessary contextual information from the retaining attorney. If the information is not pertinent to the examination, do not request it. Ideally, have a person who will not work on the case collect the initial information from the attorney. In some cases this is not realistic since many examiners do not have as-

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sistants. Droor (2006) demonstrated the subconscious effects of providing unnecessary contextual information to fingerprint examiners. Arzy, et. al. (2009) demonstrated the same effects with emergency room doctors.

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Mr. Wakshull holds a graduate school certificate in forensic document examination from East Tennessee State University and a master's degree in Technology Management from the University of Denver. He was Chair of the 2012 National Association of Document Examiners Conference in San Diego and co-Chair of the 2015 Forensic Expert Witness Association's conference. As a member of National Speakers Association, he regularly speaks to local and international legal and forensic meetings and conferences.

He has been qualified as an expert witness in California Superior Courts and Federal District Court. He has been retained to work on cases in 20 states and 3 countries. Using a teaching approach, he has testified in cases involving will contests, contract disputes and others. He has been an invited speaker at forensics conferences in the United States and China.

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A Review of a Case Involving an Expert's Report in a Summary Judgment

by
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Abstract

This is a critical review of a published opinion in which a document examiner failed to discover and report a triable issue regarding a material fact. We will contemplate essential steps to take when retained to report our findings, bearing in mind that our report might be the only information from us that the judge considers.

In this critique we will see much of what is critically important in a motion for summary judgment, taking into account both Plaintiff's and Defendant's obligations of proof.

I treat these various points at some length because they provide opportunity for us to learn more about the wisdom and skills we can develop, and for that the handwriting expert in the case (hereinafter "The Expert") deserves our gratitude. The principal purpose of this paper is to help prepare ourselves for the inevitable commission involving a motion for summary judgment.

This is far from a comprehensive *vade mecum* for someone who practices law. This is merely a lay person's introduction to what a forensic expert must consider for starters in serving as an expert in writing a report or affidavit for a client in support of or in opposition to a motion for summary judgment.

When one party to a suit files a motion for summary judgment instead of proceeding to a customary trial, the judge alone will decide the outcome based on filings by the parties. The pretrial motion for summary judgment shunts the trial aside in hopes of preempting it. If the judge grants the summary judgment, in essence he or she says that there is no use having a trial because the party asking for summary judgment would necessarily win it anyway. An expert's written report will be the sole expert performance that the judge will consider. And far more likely than not, the expert will be permitted only one bite at the apple.

Keywords: Summary judgment, pretrial motion, in limine hearing, conclusory opinion, probate proceedings.

At the court of appeals hearing

A panel of appeal court judges reviewed the judge-only hearing held as an *in limine* procedure and decided whether or not the judge at the original hearing got everything correct or whether that judge's work product needed correction.

Appended to this paper is the appellate opinion of Chief Justice Ann Crawford McClure, Court of Appeals, El Paso, Texas, in the Zerboni matter.[1] It reflects the final decision by the panel of appeal court judges and is hereinafter referred to as "The Opinion." The actual expert report the judge considered is not included in The Opinion. For that we only have what they give us. And they only give us the information they decided was of critical importance to make the correct decision on all aspects of the original hearing.

No individual witness testified in person at the *in limine* hearing. No jury was called. It was what is termed a hearing on the filings. There may have been live oral discussions and arguments before the judge by the attorneys for the parties or by litigants acting in *pro per.* So, in this case at the pretrial hearing, all the witnesses involved testified by affidavit, each of which must meet requirements for how written testimony or arguments are to be presented. If the one composing the written testimony does not properly follow all the rules and guidelines, as the old naval saying has it, one might end up "dead in the water."

As you can see, an expert might be a powerhouse as a live witness before a jury, but a dud

1. The source for the appellate opinion is Google Scholar (https://scholar.google.com/scholar_case?case=14259326680043443780&q=Zerboni&hl=en&as_sdt=2006).

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when having to compose a single perfect and comprehensive statement of every iota of one's complete investigation, with every relevant fact and theoretical validation of its pertinence to the issues in dispute.

The case we will review is from a Texas court of appeals. Bear in mind that, though generally summary judgments are probably quite similar in all American jurisdictions, they all can have their own special wrinkles. For example, I was asked to submit an affidavit of a special kind for use in another state. It was a most essential requirement that I end with a statement using precise phrasing or the affidavit would not be admissible. The most important advice I have is to find out what you must do in the particular jurisdiction and in a specific case in which you are retained.

Background

Margaret Patricia Hart and Mario Zerboni (hereinafter "Margaret" and "Mario" respectively), a married couple, wrote wills dated January 10, 2005. Mario died on September 19, 2010. Mario's will was admitted to probate after a hearing on October 26, 2010. About two years later one of Mario's daughters, Ana Patricia Zerboni Flores (hereinafter "Flores") filed an application to set aside the order to probate the will. Flores asserted that Mario's signature on the will was forged and she should inherit under an older will.

Margaret and Mario had the will witnessed by three co-workers and notarized by a fourth. Therefore, requirements of the applicable Texas Code were met. Margaret provided her admissible lay opinion that Mario's signature was genuine. In response to Flores, Margaret filed a motion for summary judgment on the basis of her evidence of genuineness and that Flores could not prove that Mario's signature was forged. Thus, Margaret filed a "no evidence" motion which meant that Flores could never prove forgery.

However, Flores filed a report by The Expert whose opinion it was that Mario's signature on the will was a forgery. To have the will overturned Flores needed to prove not that The Expert's

Glossary: Some Common Legal Terms

Conclusory statement. A statement is conclusory if it provides a conclusion but no underlying facts in support of the conclusion.

Curriculum vitae. Latin for résumé.

De novo. Review of a previous court's proceeding and decision as if for the first time.

Estate. All the property a person owns.

Executed. To complete a document so its provisions take effect.

Forgery. To make or use (utter) a false document to get a valuable thing illegally.

In limine procedure. "In limine" means "in the doorway," so in limine proceedings are legal actions that happen before the trial goes on in the courtroom.

Intervene. Become involved in a legal proceeding after a decision was already given by the judge.

Ipse dixit. Latin for "he himself said (so)," meaning a person offers as proof for a statement the mere fact that the person said it was so.

Jurat. Latin for one binding oneself by an oath, so the means by which it is done.

Motion. The way to ask a judge to say or do something for the benefit of the "movant," the one making the motion.

No evidence motion. A motion stating what necessary element of .roof the opposing party cannot supply.

Prima facie evidence. Evidence that at first sight indicates nothing suspicious.

Probate proceedings. Legal processes for determining new owner of deceased person's estate.

Scintilla of evidence. "More than a scintilla of evidence exists when reasonable and fair-minded individuals could differ in their conclusions."

Self-proving. An item of evidence the law says must be taken as genuine without need of other evidence; someone saying otherwise has the burden of proving that contrary opinion.

Summary judgment. A ruling that in effect says one party could not lose the lawsuit so the other party is denied a trial.

Vade mecum. A Latin command literally saying "come with me," used to name something someone needs on a trip, especially like a little notebook of important information.

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opinion was right, but that there were reasonable grounds to suspect the will's falsity. Then a trial would follow to establish either genuineness or falsity of the disputed signature. On the other side, for Margaret to obtain summary judgment she would have to prove not that The Expert was wrong in his opinion, but that his report did not cast the least reasonable doubt on Mario's will and that no other proof was available to Flores. Margaret's chief attack on The Expert's report was that his opinion was conclusory. There was no personal or professional attack on The Expert.

On page 3, lines 34-36 of The Opinion, Chief Justice McClure stated:

> "Yet even assuming The Expert's report should have been treated as an affidavit, we nonetheless agree with Hart [Margaret] that [The Expert]'s core opinion is conclusory. A conclusory statement in an affidavit is a substantive defect that can be raised for the first time on appeal."

At page 4, lines 1-2 of The Opinion, "conclusory" is defined: "A statement is conclusory if it provides a conclusion but no underlying facts in support of the conclusion." We will later give much attention to this concept. For now, bear in mind that the position of either party had to be rooted in solid, demonstrable facts. The Opinion repeatedly emphasizes that qualifications and past notable accomplishments would not prevail, only admissible, persuasive facts and reliable methodology and performance.

In the summary judgment hearing, of the two opposing parties Flores had the easier task: to demonstrate that there existed at least factual evidence that the disputed signature might be a forgery. The summary judgment hearing could not involve any other issue nor any factual evidence nor legal provision not relevant to that one issue, because that was the one approach whereby Flores claimed she had shown there were contrary answers to it upon which the parties could reasonably disagree and it would have to be resolved in a trial on the merits.

Let us take our seats in the courtroom arena for the summary judgment hearing and see how the parties duke it out and with whom the hearing judge sides and how the subsequent appeal goes.

The contest

The Expert entered the fray under the self-testimony that he was widely successful and was an amazing international champion. In his internet CV he portrays himself as one we could not outdo in piling praises and adulation on himself. In fact, he has been disqualified in a number of cases.

Margaret did not attack The Expert's qualifications or discern whether or not he had been impeached, though she could have. Further, Margaret could have attacked the lack of definition of the issues and persuasive evidence absent from The Expert's affidavit, as well. In some other summary judgment cases surveyed, the losing party lost because its expert had failed to state the issues involved and did not support opinions with admissible and persuasive evidence.

The Expert described the theory he employed and the method he followed. He uncovered the "patterns of writing habits to help identify the author" (At page 1, lines 30-31 of The Opinion). If I were cross-examining a handwriting expert who said such a thing, I would require definitions of all such technical terms with illustrations of each habit and pattern claimed to have been discovered; identification of the authority who best states and proves the criteria that establish each habit and each pattern so discovered; and how each element supports the expert opinion.

I believe the witness should be made to satisfy the requirements of the evidence code where acceptable proof of habit is set forth. I have never encountered written or oral testimony where that occurred, nor have I endured an author or presenter who touched on the topic and explained what the requirements for proof of habit are and how to make use of them.

We continue with a quote from page 1, lines 31-33 of The Opinion:

> "Handwriting is formed by repeated habits of writing by the author, which are created by neu-

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> ropathways [sic] established in the brain. These neuro-pathways [sic] control muscular and nerve movement for writing, whether the writing is executed by the hand, foot, or mouth."

A good cross-examiner would delight in the potential queries inspired by this passage. As the proverb says, "Verbosity is the facade of the fatuous." Habits are not repeated; rather they facilitate the repetition of the actions belonging to the habit. If that were not so, you would end by being burdened with layer upon layer of the same habit. As the genesis of habit is stated by The Expert, one would have to have a habit to develop it. An astute observer would notice that the gentleman struggles with proper understanding of the technical fine points of his discipline. He also invites impeachment by bringing in foot and mouth writing.

Margaret's case gives an excellent example of good court evidence and argument. Through her attorney she focuses only on traveling down the avenue that leads to the lack of admissible and reliable evidence underlying The Expert's opinion.

Rather than showing off our self-impressed mastery of the neurological fine points of anatomical movements in writing, we should testify on a modest level that caters to the comprehension of ordinary folks about finger, hand, and arm movement versus neuromuscular and other highfalutin words for such an ordinary and everyday action as handwriting. In composing an affidavit for summary judgment, we can then employ the most modest of scientific terms if and when they are needed. Then we should supply definitions to assist the reader.

At page 1, line 37, et seq. of The Opinion, The Expert says after a "thorough" analysis of 29 documents bearing genuine signatures, with "an application of accepted forensic document examination tools, principles and techniques," his "professional expert opinion" was that his paying client was right, Mario's signature on his will was forged. We are given one principle and no other of the supporting tools, etc. The Opinion says The Expert gives several citations to the proposition that a single "significant difference" between Mario's purported signature and the genuine exemplars proves the questioned writing is forged. The Opinion includes a quote from Ordway Hilton's paper, "Proper evaluation of dissimilarities in handwriting" (International Criminal Police Review, 105:48-51, Feb. 1957). In this case, the cause of the individual single difference would have to be determined along with other indicators in the context of the writing before The Expert's conclusion could be justified. However, The Opinion points out a conclusive answer to The Expert's method and its application and immediately adds the following conclusive criticism:

> "[The Expert] did not explain, however, what 'significant difference' he observed between the exemplars and the challenged signature on the will. Rather, he states his willingness to testify in court where he 'will prove to the Court that my opinion is correct.'" (At Page 2, line 3, et seq. of The Opinion)

The Opinion goes on to say:

> "…[The Expert] states a premise and a conclusion, but because there is nothing connecting the two, the conclusion is little more than his bare opinion. The Expert first claims that there is a science to document examination, a proposition no one here contests. He next claims that he compared exemplar signatures to the questioned signature. He then concludes that the questioned signature is a forgery. He finally states that a single difference in handwriting proves a forgery, perhaps inferring that such a situation exists here, but he never identifies what difference, if any, he found. He finally suggests that he is willing to testify in court and prove his assertion. The problem here is that the summary judgment proceeding is where he needed to offer proof of that assertion.
>
> "The fact that [The Expert] may be a qualified expert does not change our opinion. Courts do not accept the mere ipse dixit of an expert (or, it is because I say it is) [Citations omitted by author].… As the Texas Supreme Court has stated: 'although expert opinion testimony often provides valuable evidence in a case, it is the basis of the witness's opinion, and not the witness's qualifications or his bare opinions alone, that can settle an issue as a

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> matter of law; a claim will not stand or fall on the mere ipse dixit of a credentialed witness.'" (At Page 4, lines 16-23 of The Opinion) [Citations omitted by author]

The reference to having to provide needed proof at the summary judgment hearing might indicate neither Flores nor The Expert understood what the situation required of them. Flores was in *pro per* at this point. However, given the substantial and numerous failings of The Expert's report, the situation gave all indications of hopelessness for her contention.

The Opinion indicates that it includes a facsimile of the questioned signature and of an exemplar which my source did not reproduce. The Opinion references the two facsimiles in answering our question of how much evidence need the non-movant supply to defeat a motion for summary judgment:

> "We review the evidence in the light most favorable to the non-movant, crediting evidence favorable to that party if reasonable jurors could, and disregarding contrary evidence unless reasonable jurors could not. The non-movant establishes a genuine issue of material fact by producing more than a scintilla of evidence regarding the challenged element. More than a scintilla of evidence exists when reasonable and fair-minded individuals could differ in their conclusions. The non-movant fails in their burden when the evidence is so weak as to do no more than create a mere surmise or suspicion of material fact." (At Page 2, lines 22-31 of The Opinion) [Citations omitted by author]

At page 4, line 33 through page 5, line 6 of The Opinion, the Justices share some of their own comparative handwriting examination:

> "Our record underscores the rationale for this rule. Here is the questioned signature found on the January 10, 2005 will:[2]
>
> "One of the exemplar signatures that [The Expert] used in comparison indeed contains a difference noticeable to a lay observer:
>
> "Yet other exemplar signatures, such as this one, contain no obvious difference:
>
> "Looking at the twenty-nine exemplars, we note several signatures with differences, but others not. We do not doubt that a proper expert opinion which relies on the comparison of exemplar signatures to a questioned signature can create a fact question for a jury. And had [The Expert] articulated some specific characteristic in the signature that supported his conclusion, we might well view the situation differently. But merely stating that he made a comparison, and that in his opinion one signature is a forgery, is no different than an expert who claims to have reviewed a case file and concludes that one party should win. That kind of expert opinion carries no weight in the summary judgment context." [Citations omitted by author]

According to the generally accepted standards in the field of questioned document examination, in order to validate the expert's opinions relating to identification of genuine or false signatures, a verified set of claimed identifying significant traits must be similarly used on all observation-based findings. In a case like this one, if even one exemplar does not fit the alleged identification of a single other exemplar, the witness's opinion is invalidated. As in The Opinion, our best testing of the reliability of the expert's opinion is to study its underpinnings to discover any physical facts contrary to those the witness offers as the confirming facts of the expert opinion.

As the quote above demonstrates, the Appeal Court arrived at compelling evidence that The Expert's affidavit did not and could not overcome the motion for summary judgment by "more than a scintilla of evidence" that the signature in dispute might be forged.

The appeal court judges then state other issues that need to be considered. For example, all supporting papers like professional publications and sample writings need to be attached and supported by statements that they are true and accurate cop-

2. The source did not provide copies of the questioned or exemplar signatures.

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ies of the originals or other available source material. Additionally, the evidence that will prove documents to be submitted at an anticipated trial must be stated in a reply to a summary judgment because a party that could not prove its evidential materials admissible at trial could not prevail in any case.

Conclusion

In my survey of opinions for the past several years, I found that more rulings to reject a document examiner's report related to motions for summary judgment than any other single issue. The basis for the ruling was principally because the expert's report lacked a feature that was an essential for a motion for summary judgment but otherwise of no moment. The expert's report was just an ordinary, run-of-the-mill report. I once asked a NADE member about the court's rejection of his report in such a case. I wondered about it since I knew the man to be most conscientious in the performance of his duties. In preparing his report, he had never been told there had been a motion for summary judgment, much less been given special instructions.

For any doubt or concern you have, ask the appointed person for guidance. Remember the Eleventh Commandment: Thou shalt cover thy fanny!

With that I hope I have treated the topic with enough attention that you will have a fair advantage and reasonably good coverage for your first or umpteenth case involving a motion for summary judgment.

Marcel B. Matley, CDE is a San Francisco based handwriting and document examiner. He holds an MALS degree from Immaculate Heart College, Los Angeles.

His formal study in handwriting analysis was with Rose Toomey in 1979-1980, with certification by Kathi de Ste. Colombe of the Paul de Ste. Colombe Center in January 1981. That study continues to date with reading in all aspects of handwriting, including document examination literature, medical and psychological research, paleography, education, Western formal penmanship and Oriental calligraphy.

In 1985, Marcel formally began work as a document examiner, which activity is now his full-time profession. He is a court qualified expert witness, has authored several published monographs and articles, and has presented at several professional conferences. He has a library collection of over 13,000 items related to forensics and handwriting. Marcel is Board Certified by NADE and frequently acts as a consultant and mentor to other document examiners.

In 2013, Marcel was the recipient of the NADE Distinguished Service Citation in recognition of his outstanding service to the association and achievement in the profession.

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Checklist of things to cover when instructed to write a report

- Ask the purpose of the report.
- Has the opposing side provided an expert's report?
- If so, do you want me to have a copy?
- If so, what am I to do with the report?
- What issue(s) am I to address in my report?
- Do you anticipate a summary judgment?
- If it is for filing with the court, to whom am I to address the report and in what format?
- Does the court require special features such as an affidavit?
- What is the time line for the report?
- Make your usual enquiries before writing a report.

This list of suggested safeguards is to be considered quite insufficient for a perfect practice as a forensic document examiner, but is a good starting point.

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The Opinion

In the Matter of Estate of Mario Zerboni, Deceased,556 SW 3d 482 - Tex: Court of Appeals, 8th Dist. 2018, No. 08-16-00270-CV. Court of Appeals of Texas, El Paso. July 31, 2018. Appeal from Probate Court No. 1 of El Paso County, Texas (TC # 2010-P01056).

(484*) OPINION: Ann Crawford Mcclure, Chief Justice.

After Mario Zerboni passed away, his wife probated his will. One of Zerboni's daughters, Ana Patricia Zerboni Flores ("Flores"), later intervened in the probate proceedings and claimed Zerboni's signature on the will was a forgery. The probate court granted the wife's no evidence motion for summary judgment dismissing that claim. We affirm.

BACKGROUND

Mario Zerboni passed away on September 19, 2010. His wife, Margaret Patricia Hart (Hart), filed an application to prove a will dated January 10, 2005. The will was witnessed by three persons, and contained a self-proving affidavit as set out in the *Estates Code*. See *TEX.EST.CODE ANN.* § 251.104 (West Supp. 2017). The probate court admitted the will to probate following a hearing on October 26, 2010.

Almost two years later, Flores filed an application to set aside the order probating the will. Flores alleged that her father's signature on the January 10, 2005 will was a forgery, and that she was a beneficiary under an earlier will. After the parties exchanged discovery, Hart filed a no evidence motion for summary judgment claiming that Flores lacked any evidence of the essential elements of the claims asserted. In particular, the motion claimed that Flores lacked any evidence that the signature on the challenged will was forged.[1]

(485*) Flores filed a response.[2] The response included Hart's deposition explaining that she and Mario Zerboni jointly redid their wills using a form found on an internet website. They executed the wills at a Merrill Lynch office where Hart worked. The three witnesses were Merrill Lynch employees, as was the notary public that notarized the signatures. Mario Zerboni had also worked for a time at this same Merrill Lynch office and would have been known to the witnesses and notary.

The response also attached an opinion letter from a handwriting expert, Curtis Baggett. The response included Baggett's curriculum vitae setting out his education and experience as a document examiner. Baggett's report explains in general that:

"An examination of handwriting includes establishing patterns of writing habits to help identify the author. Handwriting is formed by repeated habits of writing by the author, which are created by neuropathways established in the brain. These neuro-pathways control muscular and nerve movement for writing, whether the writing is executed by the hand, foot, or mouth."

Baggett's report indicates that he compared twenty-nine documents with the known signature of Mario Zerboni to the signature on the January 10, 2005 will. Baggett then concludes with respect to this case that:

"Based upon thorough analysis of these items and from an application of accepted forensic document examination tools, principles and techniques, it is my professional expert opinion that a different person authored the name of Mario Zerboni on the questioned documents. Someone did indeed forge the signatures of Mario Zerboni on [the January 10, 2005 last will and testament]."

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Baggett then included quotes and citations to several references standing for the proposition that "one significant difference in the fundamental structure of a writing compared to another is enough to preclude common authorship. " Baggett did not explain, however, what "significant difference" he observed between the exemplars and the challenged signature on the will. Rather, he states his willingness to testify in court where he "will prove to the Court that my opinion is correct." The report contains a concluding jurat swearing to the contents of the letter opinion. Flores also attached to the summary judgment response the various exemplar signatures that Baggett identified in his report, as well as a copy of the January 10, 2005 will.

At the hearing, Hart orally objected to the documents attached to the summary judgment response because they were not properly proven up. The trial court did not expressly rule on that objection, but it did generically grant the motion for summary judgment.

STANDARD OF REVIEW

We review a trial court's decision to grant summary judgment de novo. (486*) *Travelers Ins. Co. v. Joachim*, 315 S.W.3d 860, 862 (Tex. 2010). A "no evidence" motion requires the moving party to "state the elements as to which there is no evidence," and upon doing so, the burden shifts to the non-movant to produce summary judgment evidence raising a genuine issue of material fact regarding each element challenged in the motion. TEX. R.CIV.P. 166a(i); see also *Wade Oil & Gas, Inc. v. Telesis Operating Company, Inc.*, 417 S.W.3d 531, 540 (Tex.App. — El Paso 2013, no pet.). A defendant is entitled to summary judgment if it conclusively negates at least one element of the plaintiff's claim, or conclusively establishes an affirmative defense. *Frost Nat'l Bank v. Fernandez*, 315 S.W.3d 494, 508 (Tex. 2010).

We review the evidence in the light most favorable to the non-movant, crediting evidence favorable to that party if reasonable jurors could, and disregarding contrary evidence unless reasonable jurors could not. See *City of Keller v. Wilson*, 168 S.W.3d 802, 827 (Tex. 2005); *Johnson v. Brewer & Pritchard*, P.C., 73 S.W.3d 193, 208 (Tex. 2002). The non-movant establishes a genuine issue of material fact by producing more than a scintilla of evidence regarding the challenged element. *King Ranch, Inc. v. Chapman*, 118 S.W.3d 742, 751 (Tex. 2003). More than a scintilla of evidence exists when reasonable and fair-minded individuals could differ in their conclusions. Id. The non-movant fails in their burden when the evidence is so weak as to do no more than create a mere surmise or suspicion of material fact. *Wade Oil & Gas*, 417 S.W.3d at 540.

DISCUSSION

Flores presents one issue on appeal. She contends that Baggett's expert witness report raises a genuine issue of material fact as to whether Mario Zerboni's signature on the January 10, 2005 will was forged. We disagree.

A will proponent carries the initial burden of proof when admitting a will to probate. See TEX. EST. CODE ANN. § 256.152 (West Supp. 2017)(setting out predicates for probating will). A self-proving will obviates some of those burdens, but once admitted to probate, a self-proved will is prima facie evidence of valid will execution. Id. at § 251.102 (West 2014); *Schindler v. Schindler*, 119 S.W.3d 923, 931 (Tex.App. — Dallas 2003, pet. denied); *James v. Haupt*, 573 S.W.2d 285, 288 (Tex. Civ.App. — Tyler 1978, writ ref'd, n.r.e.). Accordingly, Flores carried

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the burden of proof on the issue of forgery on the already probated will. See *Tomlinson v. Estate of Theis*, 03-07-00123-CV, 2008 WL 160202, at *6 (Tex.App. — Austin Jan. 18, 2008, no pet.)(mem. op., not designated for publication)(allocating burden of proof to party claiming forgery of self-proved will). Flores claims she met that burden through her expert's opinion letter which was attached to her summary judgment response. On its face, the expert report states that the signature is a forgery. In response, Hart does not challenge the expert's qualifications, but rather claims that the attachments to the summary judgment response were never proved up as admissible and that the expert's opinion was conclusory.

Hart first contends the exhibits to the summary judgment response were never authenticated. A party cannot simply attach a document to a summary judgment response and assume it to be admissible. *Gunville v. Gonzales*, 508 S.W.3d 547, 558 (Tex.App. — El Paso 2016, no pet.); *United Rentals, Inc. v. Smith*, 445 S.W.3d 808, 814 (Tex.App. — El Paso 2014, no pet.) ("Simply attaching a document to a pleading neither makes the document admissible as evidence, dispenses with proper (487*) foundational evidentiary requirements, or relieves a litigant of complying with other admissibility requirements.").

And had Flores simply attached an expert report, the argument might have ended there. Baggett's expert report, however, contains a jurat at its conclusion such that it could be considered as an affidavit. An "affidavit" is "a statement in writing of a fact or facts signed by the party making it, sworn to before an officer authorized to administer oaths, and officially certified to by the officer under his seal of office." TEX.GOV'T CODE Ann. § 312.011(1)(West 2013). An affidavit that meets the Government Code's requirements may be presented as summary judgment evidence if otherwise complies with TEX.R.CIV.P. 166a(f). *Mansions in the Forest, L.P. v. Montgomery County*, 365 S.W.3d 314, 316 (Tex. 2012). Baggett's report is signed by him, and immediately following the signature is a jurat executed by a notary public stating "[t]he above Letter of Opinion was sworn to and subscribed before me by Curt Baggett this 4th day of December, 2012." The jurat includes the notary public's seal. Any complaint about the formalities of the affidavit would constitute an objection to form that must have been raised and ruled on below. Id. at 317 (holding that an objection is required to preserve a complaint that a purported affidavit lacks a jurat or other indication that it was sworn to because it is an objection to form); *Bates v. Pecos County*, 546 S.W.3d 277 (Tex.App. — El Paso 2017, no pet.)(stating same for sham affidavit objection); *Trinh v. Campero*, 372 S.W.3d 741, 744 (Tex.App. — El Paso 2012, no pet.)(same for objection to timeliness of designation of expert used to respond to summary judgment).

Yet even assuming Baggett's report should have been treated as an affidavit, we nonetheless agree with Hart that Baggett's core opinion is conclusory. A conclusory statement in an affidavit is a substantive defect that can be raised for the first time on appeal. *Ordonez v. Solorio*, 480 S.W.3d 56, 63-64 (Tex.App. — El Paso 2015, no pet.). As this Court has recognized, "form" is defined as the structure of something, while "substance" is a fundamental or characteristic part or quality. *Dailey v. Albertson's, Inc.*, 83 S.W.3d 222, 226 (Tex.App. — El Paso 2002, no pet.). "For instance, the lack of a formal recitation in an affidavit that the facts set out are within the affiant's personal knowledge is a matter of form, while lack of personal knowledge reflected in the affiant's testimony itself is one of substance." *Ordonez*, 480 S.W.3d at 64.

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A statement is conclusory if it provides a conclusion but no underlying facts in support of the conclusion. See *Brown v. Brown*, 145 S.W.3d 745, 751 (Tex.App. — Dallas 2004, pet. denied); *Hou-Tex., Inc. v. Landmark Graphics*, 26 S.W.3d 103, 112 (Tex.App. — Houston [14th Dist.] 2000, no pet.); *Rizkallah v. Conner*, 952 S.W.2d 580, 587 (Tex.App. — Houston [1st Dist.] 1997, no writ). Logical conclusions based on stated underlying facts are proper. *Rizkallah*, 952 S.W.2d at 587; *Thompson v. Curtis*, 127 S.W.3d 446, 450 (Tex.App. — Dallas 2004, no pet.) Here, however, Baggett states a premise and a conclusion, but because there is nothing connecting the two, the conclusion is little more than his bare opinion. Baggett first claims that there is a science to document examination, a proposition no one here contests. He next claims that he compared exemplar signatures to the questioned signature. He then concludes that the questioned signature is a forgery. He finally states that a single difference in handwriting proves a forgery, perhaps inferring that such a situation exists here, but he never identifies what difference, if any, he (488*) found. He finally suggests that he is willing to testify in court and prove his assertion. The problem here is that the summary judgment proceeding is where he needed to offer proof of that assertion.

The fact that Baggett may be a qualified expert does not change our opinion. Courts do not accept the mere ipse dixit of an expert (or, it is because I say it is). *City of San Antonio v. Pollock*, 284 S.W.3d 809, 816 (Tex. 2009)(collecting cases); *Loera v. Fuentes*, 511 S.W.3d 761, 772 (Tex.App. — El Paso 2016, no pet.). As the Texas Supreme Court has stated: "although expert opinion testimony often provides valuable evidence in a case, 'it is the basis of the witness's opinion, and not the witness's qualifications or his bare opinions alone, that can settle an issue as a matter of law; a claim will not stand or fall on the mere ipse dixit of a credentialed witness.'" *Coastal Transport Company, Inc. v. Crown Central Petroleum Corp.*, 136 S.W.3d 227, 232 (Tex. 2004), quoting Burrow v. Arce, 997 S.W.2d 229, 235 (Tex. 1999). A bare conclusory expert opinion would never support a judgment. *Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 712 (Tex. 1997)("When the expert `brings to court little more than his credentials and a subjective opinion,' this is not evidence that would support a judgment.... If for some reason such testimony were admitted in a trial without objection, would a reviewing court be obliged to accept it as some evidence? The answer is no."). Nor would it create a fact issue in response to a motion for summary judgment. *Wadewitz v. Montgomery*, 951 S.W.2d 464, 466 (Tex. 1997) ("[A]n expert witness's conclusory statement ... will neither establish good faith at the summary judgment stage nor raise a fact issue to defeat summary judgment.").

Our record underscores the rationale for this rule. Here is the questioned signature found on the January 10, 2005 will:

[My source did provide a copy]

One of the exemplar signatures that Baggett used in comparison indeed contains a difference noticeable to a lay observer:

[My source did provide a copy] (489*)

Yet other exemplar signatures, such as this one, contain no obvious difference:

[My source did provide a copy]

Looking at the twenty-nine exemplars, we note several signatures with differences, but others not. We do not doubt that a proper expert opinion which relies on the comparison of exemplar signatures to a questioned signature can create a fact question for a jury. See *In re*

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Estate of Whipple, 04-11-00645-CV, 2013 WL 1641414, at *9 (Tex.App. — San Antonio Apr. 17, 2013, pet. denied). And had Baggett articulated some specific characteristic in the signature that supported his conclusion, we might well view the situation differently. But merely stating that he made a comparison, and that in his opinion one signature is a forgery, is no different than an expert who claims to have reviewed a case file and concludes that one party should win. That kind of expert opinion carries no weight in the summary judgment context.[3]

The exemplars are identified in, and appear to be attached to Baggett's report. Under the summary judgment rules, a party "shall" attach "[s]worn or certified copies of all papers" referred to in an affidavit. TEX.R.CIV.P. 166a(f); see *Republic Nat'l Leasing Corp. v. Schindler*, 717 S.W.2d 606, 607 (Tex. 1986)(per curiam)(holding that affidavit which stated that attached documents were true and correct copies of the originals was sufficient). We need not reach the question of whether the exemplars were properly included in the summary judgment response. (490*) Even if they were, Flores does not suggest that the exemplars in and of themselves create some evidence for the forgery claim. Flores points to no other evidence in the summary judgment response that purports to create a fact issue on forgery. We overrule her single issue on appeal and affirm the probate court's judgment below.

[1] An amended application also asserted claims for fraud, undue influence, and a failure to meet the formalities for wills under the Estates Code. Those issues were all disposed of adversely to Flores on summary judgment, and have been conceded on appeal.

[2] Flores was represented for a time in the probate court, but as of the date of the motion for summary judgment, she appeared pro se. She timely filed an initial response titled "Re: Margaret P. Hart's Motion for Summary Judgment". Two days before the summary judgment hearing, she filed "Plaintiff's Response in Opposition to the Defendant's Motion for Summary Judgment and Brief in Support." Because there is no order allowing the amended response, which was otherwise not timely, we consider only the initial response. See *Benchmark Bank v. Crowder*, 919 S.W.2d 657, 663 (Tex. 1996)(affidavit filed two days before summary judgment hearing was not considered on appeal in absence of order granting leave for late response).

[3] Proper lay testimony can also establish a fact issue on forgery. *In re Est. of Swanson*, 130 S.W.3d 144, 148 (Tex.App. — El Paso 2003, no pet.)(one sister's unequivocal testimony that she knew her sister's signature, and that the signature on the will was not her sisters raised a fact issue precluding summary judgment). But even with lay testimony, bare opinions that a signature is a forgery are not sufficient. See *Cotten v. Cotten*, 169 S.W.3d 824, 828 (Tex.App. — Dallas 2005, pet. denied)(trial court properly struck as conclusory a statement in an affidavit that the witness' mother had forged his father's signature); *In re Est. of Price*, 04-05-00438-CV, 2006 WL 3725542, at *2 (Tex.App. — San Antonio Dec. 20, 2006, pet. denied)(mem. op.)(claim that the signature and initials on a will "look different" than that of the testator did not create a fact issue on a forgery claim).

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Left-hand and Opposite-hand Writing Features Useful as a Basis of Forming Expert Opinions of Authorship - Second Edition

by
Jacqueline A. Joseph, CDE, D-BFDE

Abstract: When comparing handwritten documents concerning disputed authorship, the examiner is responsible for applying a reasonable explanation to an observed significant difference[1] between features as part of forming an expert opinion of identification. This article discusses and illustrates the features attributed to the use of the left hand and the opposite- or unaccustomed opposite-hand.

Keywords: Left-handed writer, awkward-hand signatures, unaccustomed left hand, handedness, hand preference, handwriting posture, writer's cramp, incomplete cerebral dominance, court-ordered handwriting exemplars.

Introduction to the Second Edition

In recent years, I have received several cases involving the suspicion of left-hand writing as a strategy to conceal one's identity. During this time, I was also presented with cases involving the clients' claim of the use of the opposite hand to write a signature as a justification for its unnatural appearance. These cases encouraged me to continue with the studies that generated the original article. Results from my additional studies have been added to this edition of the bibliography. The first edition included selected images that were drawn from my studies of more than 300 audience members who participated in writing exercises involving writing their signatures with both hands. I have added the same subject's dominant-hand signatures for comparison of the various features.

The previously published companion piece[2] has been integrated into this article and now includes books, monographs, and DVDs. Many of the works listed have extensive bibliographies to which the reader's attention is also specifically directed. The works can be used to provide recognized and authoritative writings by international authors in the field to support one's conclusions.

Not all bibliographic entries have annotations; however, the absence of an annotation is not an implication that the work has less value than annotated entries. Where included, the author's biographic note is contemporaneous to the date of publication. Journal citations were drawn from *The QDE Index* and *Health and Handwriting: An Annotated Bibliography of Forensic, Legal and Med/Psych Periodical Literature*, both by Marcel B. Matley of A & M Matley Handwriting Experts of San Francisco, California.

It is my hope that readers will become familiar with these features and find this knowledge useful as a basis of forming opinions of authorship.

Commentary

In an investigation involving questioned authorship, most handwriting comparisons concern the matter of whether or not the questioned and the known handwriting were written by the same person rather than the question of which hand was used.

Basis of forming expert opinions of authorship

Many factors are involved in a comprehensive examination and comparison of writing and of the formation of an expert opinion including:

1. The uniquely identifying features in the subject's handwriting;
2. the skill and competence of the examiner; and
3. the nature of the questioned document and the

1. "Significant difference" is defined by the author as a uniquely observed feature that is not evident in the writer's habitual pattern, and which cannot otherwise be reasonably attributed to the writer or writing circumstances.

2. Joseph, Jacqueline A. The annotated bibliography: Left-hand and opposite-hand writing features useful as a basis of forming expert opinions of authorship. *National Association of Document Examiners Journal*,.27, No.1: 17-21, Fall 2004.

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available material for comparison.

In forming an expert opinion regarding authorship, the subject writer's use of the unaccustomed hand for writing is considered as a reasonable explanation for significant differences between comparable features. The observable differences, along with the appropriate reasonable explanation, can be clearly demonstrated to the fact finder and supported by research, as reported herein and elsewhere.

Adult writers are generally more proficient with one hand than with the other. According to F. E. Dreifuss, the ratio of right-handed to left-handed individuals is 7:1.[3] A child will usually be either right- or left-handed by 18 months of age. The hand used commonly for manual tasks may or may not be the hand preferred for writing.

The ambidextrous writer

In forming an expert opinion of common authorship, the examiner considers whether or not a questioned writing is the product of a naturally or circumstantially left-handed writer, or an attempt by the subject writer to conceal his/her identity by using the non-dominant hand. Based on her research of over 4,000 specimens of handwriting, the features indicating opposite-hand writing are discussed by Viola Stevens. From an examination of pairs of specimens of two-handed writers, it was found that, in every pair, one specimen was vastly superior to the other in quality. Furthermore, Stevens found that both left-hand and right-hand writers changed to vertical slant when using the opposite hand.[4]

The foreign script writer

Benny Shanon researched American and Israeli left- and right-hand subjects as they drew horizontal character elements, lines and faces.

Shanon reports that the direction of movement of the handwritten character elements of Israeli subjects writing in Hebrew, written either from right to left or vertically, are observed as features similar to the ambidextrous and left-hand writer.[5]

The left-hand writer

The following is a list of significant features indicating a person is writing naturally with his/her left hand. It is a composite of features found in the publications listed in the bibliography and drawn from my writing experiment studies with more than 300 subjects.

Features having significance indicating a person could be a left-handed writer include:

- Crossing of the lower case *t* from right to left.
- Leftward drag of elongated *i*-dots.
- Long initial stroke of the letter at the beginning of a word which may proceed either in an upward or downward direction.
- Hooks and curves at the beginning of some small and capital letters which commence in a leftward direction.
- Prominent eyelets in beginning part of the small *a, d* and *g*, representing an initial underhand motion.
- Overhand motion in forming lower case *v* (made with retrace or eyelet at bottom) and the lower case *h* (eyelet formed where loop and hump are joined).
- Tenting of lower case *h, l* and *t*, and tenting of the upper part of capital *I* and *J*.
- Open lower part of the final lower case *g* and *y* with the ending stroke curving to the left; also, triangular or v-shaped lower parts of those letters.
- Absence of terminal endings of such letters as lower case *d, l* and *t*, as well as lower case *h, m* and *n*, with slight pen drags to the left.
- Terminal of the lower case *s* with an absence of a retraced bottom coupled with a leftward extension of the closing part.
- Lower case *f* and *k,* as well as capital *G*, are

3. Dreifuss, F. E. Diagnosis and treatment of incomplete cerebral dominance. *Journal of the American Medical Association*, 206: 141, 1968.

4. Stevens, Viola. Characteristics of 200 awkward-hand signatures. *International Criminal Police Review,* 237:130-7, April 1970.

5. Shanon, Benny. Graphological patterns as a function of handedness and culture. *Neuropsychologia*, 17:457-65, 1979.

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also found to have considerable leftward extension in their closings.

Feature comparisons: The unaccustomed opposite-hand writer

In his study comparing right-hand writers writing with their left hand Greg Dawson reports that the primary difference between the writings was observed in the writer's skill of execution, whereas the spacing between letters, words, and lines remained proportionally the same.[6]

Features having significance indicating a person is writing with his/her unaccustomed opposite-hand as compared to his/her accustomed writing hand are illustrated below.

• Upright slant versus rightward or leftward slant

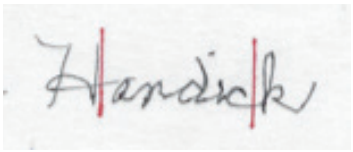

Fig. 1a—Upright slant

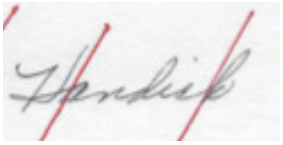

Fig. 1b—Rightward slant

• *t* bar crossings crooked and wandering versus straight

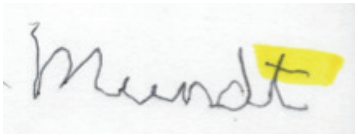

Fig. 2a—Crooked *t* bar

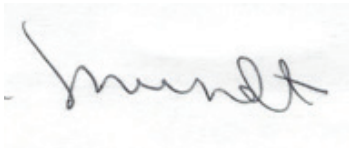

Fig. 2b—Straight *t* bar

• Flat-top *r* versus pointed or rounded

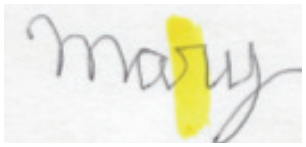

Fig. 3a—Flat-top *r*

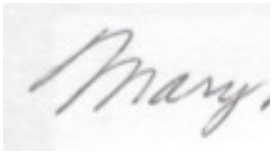

Fig. 3b—Pointed-top *r*

• Flat-top upper zone loops versus pointed or rounded

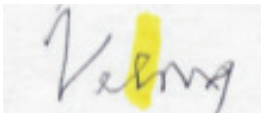

Fig. 4a—Flat-top upper zone loop

Fig. 4b—Rounded-top upper zone loop

• Tent-shaped *t* stem with wide bottom versus retraced

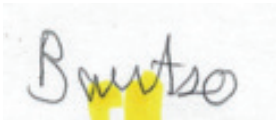

Fig. 5a—Tent-shaped *t*

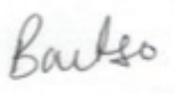

Fig. 5b—Retraced *t* stem

6. Dawson, Greg A. Brain function and writing with the unaccustomed left hand. *Journal of Forensic Sciences*, 30:167-71, Jan. 1985.

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- Acute angle connecting strokes versus curved

Fig. 6a—Acute angle connectors

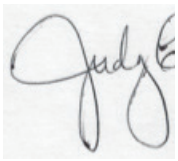

Fig. 6b—Curved connectors

- Flattened lower zone loops versus pointed or rounded

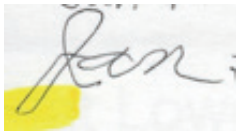

Fig. 7a—Flattened lower zone loop

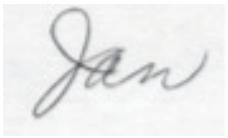

Fig. 7b—Rounded lower zone loop

- Dragged terminals versus stunted

Fig. 8a—Dragged terminal

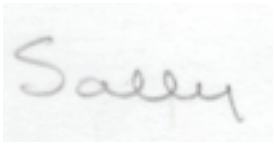

Fig. 8b—Stunted terminal

- Uncertain versus certain movements

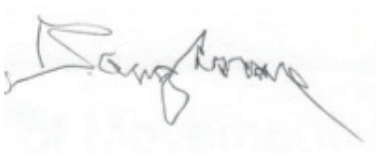

Fig. 9a—Uncertain movements

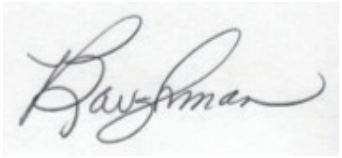

Fig. 9b—Certain movements

- Fine tremor versus smooth line quality

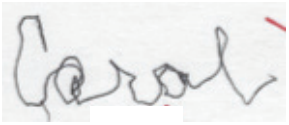

Fig. 10a—Fine tremor

Fig. 10b—Smooth line quality

- Directional changes of movement abrupt versus fluid

Fig. 11a—Abrupt directional changes

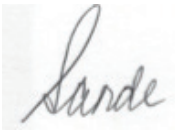

Fig. 11b—Fluid movement

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Conclusion

A proficient handwriting examiner considers that questioned handwriting having an unnatural appearance may or may not have been written by someone using either the left hand or the unaccustomed opposite hand. Contrary to some views that left-handed writers are less skillful than right-handed writers, Gordon Stangohr, in his study, reported no remarkable skill difference between the two groups. Some features of opposite-hand writing are also observed in the writing of the ordinarily unskilled writer. This justifies the need to do a thorough and exhaustive investigation comparing all available information and exemplars, especially any opposite-hand requested exemplar.

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Alford systematically explores the most common methods writers use to alter their writing and illustrates the frequency of occurrence of the particular features that were changed. Writing from actual cases was not used, in which event the motivation for disguise would be more compelling and/or practiced. Alford discusses his methods of collecting the writing and the criteria used in his study of 135 sets of writing. The features he uses are change of slope, spacing, size, the use of awkward hand, hand printing, arrangement, change of angularity, deceptive spelling, altered approach and terminal strokes, alteration of upper and lower extensions, capital and lower-case letter forms, the *i* dot or period, and handwritten numbers. He notes that the features most often changed were those which most drastically affected the pictorial appearance of the writing. Alford's caution is about wrongly attributing differences to disguise or overlooking possible identifying features because they were masked, which could lead to serious error. This article is illustrated with before and after writing of same writer writing the same sentence. It also shows what changed and what remained unchanged.

Edwin F. Alford, Jr., Crime Laboratory, Post Office Department, Washington, D.C.

Alford, E. F. Jr. & Ronald M. Dick. (1978) Intentional disguise in court-ordered handwriting specimens. *Journal of Police Science and Administration,* 6:419-23.

This paper discusses the history of handwriting testimony in courts which lays the foundation for policies adopted by forensic laboratories for the use of exemplars which are also discussed. Court-ordered handwriting exemplars are discussed. Intentional disguise of handwriting while giving request exemplars, and the use of awkward-hand writing specimens are discussed. Intentional disguise, as a basis of an expert's opinion using handwriting evidence, is cautioned. Alford and Dick state that it is a well-known fact that some individuals are capable of writing in vastly different styles which could be a skill used for the purpose of deception. Case law is cited. Includes case reports and illustrations.

E. F. Alford, Jr., Chief Document Examiner and Chief of the Identification Branch, U.S. Secret Service, Washington, D.C.

Ronald M. Dick, Questioned Document Section, Florida Department of Criminal Law Investigation.

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Mary S. Beacom, M.A., Atlanta, Georgia. Presented at the Thirteenth Annual Meeting, American Academy of Forensic Sciences, Feb. 25, 1961.

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Greg A. Dawson, Document Examiner, Centre of

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Forensic Sciences, Toronto, Canada.

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Greg A. Dawson, Canadian Society of Forensic Science 39th Annual Meeting, Halifax, Nova Scotia, August 20-25, 1992.

Dreifuss, F. E. (1968) Diagnosis and treatment of incomplete cerebral dominance. *Journal of the American Medical Association*, 206:141.

F. E. Dreifuss, Professor of Neurology, University of Virginia.

Franks, J. E. (1982) Direction of ballpoint pen strokes in left- and right-handed writers as indicated by the orientation of burr striations. *Forensic Science Society Journal*, 22:271-4.

An excellent and comprehensive discussion of burr striations as a result of the use of ballpoint pens relative to the direction of movement, most notably in the curved strokes. One illustration.

J. E. Franks, Department of English Language and Literature, The University of Birmingham, England.

Franks, J., T. Davis, R. N. Totty, R. A. Hardcastle & D. M. Grove. (1985) Variability of stroke direction between left- and right-handed writers. *Forensic Science Society Journal,* 25:353-70.

This article illustrates the research methods the authors applied to thousands of writers, and the results. As an indication of handedness, this research shows that the significant differences between left- and right-handed writers in the direction of pen movement in straight lines, such as the crossing of the horizontal bar in capital letters *A, H* and *T*, is a more reliable indicator than the direction of pen movement in the circle letters' clockwise strokes. This paper was presented, in part, to the American Society of Questioned Document Examiners 1983 meeting.

J. Franks and T. Davis, Department of English Language and Literature, University of Birmingham, UK.

R.N. Totty and R.A. Hardcastle, Forensic Science Laboratory, Birmingham, UK.

D. M. Grove, Department of Statistics, University of Birmingham, UK.

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Heidi H. Harralson, Forensic Document Examiner, Tucson, AZ.

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Harrison discusses the list of the eight factors in the recognition of disguised handwriting that would have been deliberately introduced by the writer. Included are the use of opposite hand, disturbance of internal consistency, reduction of fluency and rhythm, and inconsistency of the element of disguise. Fully illustrated with detailed case reports.

Wilson R. Harrison, M.Sc., Ph.D., Director, Home Office Forensic Science Laboratory, Llanishen, Cardiff.

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Joseph, Jacqueline A. (2003) Simultaneous ambidexterity and other uncommon writing abilities. *American Handwriting Analysis Foundation Journal,* 2, No. 1:48-52.

Jacqueline A. Joseph, Board Certified Forensic Document Examiner, Portland, OR.

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Kurtz, Carolyn. (1996) The Left-Handed Writer. *World Association of Document Examiners Journal*, 200:3-4.

Carolyn Kurtz, Forensic Document Examiner, Southampton, Pennsylvania.

Levy, Jerre. (1982) Handwriting posture and cerebral organization: How are they related? *Psychological Bulletin,* 91:589-608.

Mikels, J. Ronald. (1971) Special techniques in forged document examination: how to identify left-handed writing. *Law and Order,* 19:78-84.

Includes a good photo of the upside-down left-handed pen hold which explains the resulting *i* dot which, when the writer writes with speed, is formed like a bowl or slanted vertically. This may also be observed in the period, colon, and other similar punctuation marks. The tapering of the *t* bar on the left of the stroke indicates the writer moved from right to left to cross the *t*. The *t* would also have

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a wavy or slanted bar indicating the left-handed writer used finger movement while the base of the hand remained immobile. This creates an additional problem not experienced by the right-hander, whose hand is free to move forward, like a pivot, during the crossing of the *t* from left to right. Mikels comments about a smudge pattern which may occur when the left-hand writer's hand moves across previously written lines during the writing. As the hand moves downward to the next line of writing, ink impressions are transferred from the base of the hand onto the paper.

Shanon, Benny. (1979) Graphological patterns as a function of handedness and culture. *Neuropsychologia,* 17:457-65.

This article discusses Shanon's research involving American and Israeli left- and right-hand subjects as they drew horizontal character elements, lines, and faces. The comparison of biological and environmental factors of both groups, because Americans write and scan from left to right whereas Israelis scan and write from right to left, resulted in data supporting an interactive model stipulating that: (a) the natural directionalities associated with right- and left-handers are different: left-to-right and right-to-left respectively, (b) the culturally induced directionalities associated with English and Hebrew writing are different: left-to-right and right-to-left respectively, and (c) the behavior exhibited by right-handers is fully determined by natural, biological tendencies/genetics, whereas left-handers are susceptible to environmental influence.

Benny Shanon, Department of Psychology, Hebrew University of Jerusalem, Israel.

Shepard, Evelyn. (1988) Obtaining standards from both hands. *World Association of Document Examiners Journal,* 109:2-4.

Shepard, Evelyn. (1992) Do left-handed writers have any strokes in common that might serve as a clue to handedness? *World Association of Document Examiners Journal,* 154:3-5.

Singh, Amar & S. N. Gupta. (1995) A study of two cases of unaccustomed handwriting. *Science & Justice,* 35:165-8.

This article discusses two cases and illustrates the comparative features of the normal writing and writing produced with the unaccustomed hand of one person on one document. Singh and Gupta discuss the indications of common authorship concluding that the body of the writings was written with the normal hand, whereas the signatures on the documents were written with the unaccustomed hand. Illustrations are in Hindi. Includes bibliography.

Amar Singh and S. N. Gupta, Central Forensic Institutes, Bureau of Police Research and Development, India.

Smith, Willa W. (2004) Disguise through other-hand writing. *National Association of Document Examiners Journal*, 27:3-7.

This article describes an empirical study of dominant-hand versus non-dominant-hand printing using subjects from a case involving anonymous letters. All but one of the 32 writers using the non-dominant hand wrote larger, had difficulties with stroke direction, and produced squared, angular, or jagged strokes where curves normally occur. All writers kept many of their natural writing habits with the exception of their fine motor skill capability. Illustrated.

Willa W. Smith, Forensic Document Examiner, Tampa, FL.

Stangohr, Gordon R. (1968) Opposite-hand writings. *Journal of Forensic Sciences*, 13:376-89.

Gordon Stangohr, Identification Laboratory, Post Office Department, Washington, D.C. Presented at the Nineteenth Annual Meeting of the American Academy of Forensic Sciences, February 24, 1967, Honolulu, HI.

Stevens, Viola. (1970) Characteristics of 200 awkward-hand signatures. *International Criminal Police Review*, 237:130-7.

An excellent paper detailing Stevens' research project studying signatures of inmates serving sentences on charges of forgery. They were volunteered samples of the inmates' signatures written with both the right and left hand, totaling over 4,000 specimens from over 200 inmates. Stevens includes research from the medical literature about the physiological and neurological human factors that may produce handedness in an individual. Her research led to answers about the percentage of a given population that normally uses the left hand for writing (9%), how frequently ambidexterity in handwriting is encountered (rarely), how opposite-hand writing differs from preferred-hand writing (flat-top *r, d, l* and other looped letters; vertical slant dominates; fine or bizarre tremor; open base *t,* wandering *t* bar crossing; dragging terminal strokes; abrupt changes in direction, and a comparatively low level of skill of execution). Stevens also answers the question of

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whether or not awkward-hand writing can be identified as to its source with the advice that the observed significant differences be carefully evaluated in terms of all possible factors which could account for variations such as illness, medications, fatigue, self-disguise, and the possibility of a forger's attempt to simulate an awkward-hand signature. Includes bibliography.

Viola Stevens, Document Examiner, Crime Laboratory Division, Wisconsin Department of Justice.

Suen, C.Y. (1983) Handwriting generation, perception and recognition. *Acta Psychologica,* 54:295-312.

This work was supported by a research grant from The Natural Sciences and Engineering Research Council of Canada. The paper summarizes what was found to characterize handedness in the areas of writing speed, legibility, and character formation. The results were based on several experiments conducted by Suen and the research team at Concordia University. The subjects included a small group of left-handers and a small group of right-handers. Comparatively, the most significant differences were found between writing styles (printing to cursive) within each group. For both groups, it was found that cursive, as compared to printing, measured the fastest writing style, notably due to the number of pen-lifts used when printing versus writing in cursive. The experiments were useful in finding a way to correlate writing habits with the neurological organization of the specific portion of the human brain that processes language. Includes bibliography and tables of statistics.

C. Y Suen, Department of Computer Science, Concordia University, Montreal, Quebec.

Talbot-Wilson, M. G. (1986) Variability of stroke direction between left- and right-handed writers. *Forensic Science Society Journal*, 26:177-9.

Todor, John I. (1980) Sequential motor ability of left-handed inverted and non-inverted writers. *Acta Psychologica,* 44:165-73.

This research is built on the work of Jerre Levy (See Levy, above). Tests were given to 14 female college students who were all left-handed, seven with inverted pen holds and seven with non-inverted. The more difficult the task, the better the performance of the non-inverted subjects, which was a finding that held up when the same tasks were performed with their non-dominant, right hands. The conclusion was that the non-inverted, left-handed writers had a substantial performance superiority which was related to the writers' brains. However, it might just have been due to the physiological convenience of one's habitual manner of movement. In other words, just because brain organization may determine one's preferred pen hold, the pen hold, and not the brain organization, might determine difficulties in complex movement tasks. The intellect of both groups could still very well be equal in mental processing tasks. Todor's research proves that some difficulties in handwriting are inherently attributable to the physical manner of writing, and thus can be indicative of authorship and suggestive of a non-standard, but habitual, manner of writing.

Totty, R. N., R. A. Hardcastle & Jane Dempsey. (1983) Dependence of slope of handwriting upon sex and handedness of the writer. *Forensic Science Society Journal,* 23:237-40.

This article discusses the findings from 200 subject writers that right-hand writers wrote with a greater forward slope than left-handed writers.

R. N. Totty & R. A. Hardcastle of the Forensic Science Laboratory England.

Jane Dempsey, of the Department of Mathematics, Lanchester Polytechnic, England.

Webb, Frederick E. (1978) The question of disguise in handwriting. *Journal of Forensic Sciences,* 23:149-54.

This paper discusses the basic elements of disguise and the importance of request and/or court-ordered specimens. Includes the list of landmark cases related to disguise: Gilbert v. California, 388 U.S. 263 (1967); US v. Wade, 388 U.S. 218 (1967); US v. Doe, 405 F.2d 436 (2d Cir. 1968).

F. E. Webb, Forensic Document Examiner, Bureau of Forensic Science, Northern Virginia Regional Laboratory, Merrifield, VA.

Zimmerman, Jeannine. (1995) Handwriting identification based on the "unaccustomed hand" exemplar. *International Journal of Forensic Document Examiners*, 1:283-8.

Jeannine Zimmerman, Aurora Police Department, 15001 E. Alameda Drive, Aurora, CO.

Monographs and DVDs

Matley, Marcel B. (1992) *Reliability Testing of Expert Handwriting Opinions*. Handwriting Services of California, San Francisco, CA.

This work discusses the types of handwritten forg-

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eries classified according to method as well as how to approach the full examination with the requirements for forming opinions of identification or non-identification. Matley discusses how each approach can serve as a reliability test for each of the others. Includes illustrative cases, index and bibliography.

Matley, Marcel B. (1997) *Oh, my aching arm!: The cause and cure of general writer's cramp. A monograph on the physiology of handwriting*. A & M Matley Handwriting Experts of California, San Francisco, CA.

In his study of writer's cramp, Matley considers all aspects of the basic anatomy of the hand and arm, the grip of the pen, the grasp of the pen, and how they affect handwriting. Includes 26 illustrations with bibliographic comments about the cause of writer's cramp including commentary about the way the hand, arm, and elbow moved that resulted in the illustrated writing defect (such as awkward ovals, displaced pressure and change of angle due to elbow swinging in and out). Includes "An Essay in the Psychology of Free Choice" by Matley, who considers why choice is a fundamental element in curing writer's cramp.

Matley, Marcel B. (2000) *Health and Handwriting: An annotated bibliography of forensic, legal and med/psych periodical literature. Third edition*, much enlarged. A & M Matley Handwriting Experts of California, San Francisco, CA.

The third edition includes a list of ten annotated reference books useful for information about medical terms, anatomy, drugs, and the development and diagnosis for hand dysfunction. The citation for Rose Lajoie Toomey's *Health Clues in Handwriting* provides 25 health clues with their theoretical indications that are the result of the author's empirical and primary research in cooperation with medical professionals. All of the 135 citations to journal articles pertaining to the topic of health and handwriting have Matley's annotations that are highly educational for handwriting and document examiners. The section on case law provides 35 citations regarding expert testimony in courts of law as to one's mental condition based on handwriting as well as testimony about the cause of signature dissimilitude that may be useful in defending the basis of forming one's opinion. This excellent work cites the scientific literature and key case law that any FDE could use to validate the relationships between handwriting and health factors and the admissibility of expert testimony in this regard.

Matley, Marcel B. & Jacqueline A. Joseph. (2008) *The Two Pillars of Individuality and Identifiability in Handwriting*. DVD.

This is a video of Matley and Joseph's five-hour workshop that was presented to the members of the National Association of Document Examiners in Austin, TX. It qualifies for three semester-credit hours at East Tennessee State University/Criminology Department.

Pillar One: The Physiological Factors Involved in the Production of Handwriting: How the Human Body and the Writing Environment Play a Part in the Uniqueness of Handwriting.

Pillar Two: The Psychological Factors Involved in the Production of Handwriting: How the Psyche Plays a Part in the Uniqueness of Handwriting.

Matley, Marcel B. (2016) *The QDE Index: A guide to periodical articles in English on document examination, handwriting expertise and expert testimony*. A & M Matley Handwriting Experts of California, San Francisco, CA.

Compiled, annotated and published by Marcel Matley, *The QDE Index* is the most comprehensive collection of titles, authors and case law in the field of questioned document examination. Providing 4,700 citations covering 3,750 papers published in 450 journals, the citations are drawn from forensic, legal, academic, and popular press journals.

Books

Conway, J. V. P. (1959) *Evidential Documents*. Springfield, IL: Charles C. Thomas, pp. 201-204.

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Harrison, W. R. (1981) *Suspect Documents: Their scientific examination*. Chicago, IL: Nelson-Hall Inc., pp. 365-368.

Saudek, Robert. (1929) *Experiments with handwriting*. London: George Allen & Unwin. Reprint. Sacramento, CA.: Books for Professionals, 1978, p. 380.

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Jacqueline A. Joseph, CDE, D-BFDE began her forensic practice in 1992 and is the only double-board certified forensic document examiner in the Pacific Northwest. She is an active board certified member of NADE and was the chair of the 2010 and 2016 NADE Conferences which were held in Portland, Oregon. She has served as Editor-in-Chief of the 2011 NADE Journal and Chair of the Certification Committee. She is also a board certified member of AFDE and a member of the ASTM E-30 Forensic Science Committee.

Ms. Joseph's published papers include "Identifying the Maker of Handwritten Numbers" and "Handwriting Forensics: Anonymous Note Writer Identification" and many others that may be downloaded from her website. She has lectured, nationally and internationally, to her forensic colleagues on topics ranging from becoming a more effective rebuttal witness to a fresh look at post litem motam exemplars. Along with Marcel Matley, she teaches *The Two-Pillars of Individuality and Identifiability in Handwriting* which offer a better understanding of the act of writing and help examiners build and defend more reliable opinions.

Jacqueline earned a BA degree in Secondary Education from the University of Arizona at Tucson.

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The Color Spectrophotometer and the Examination of Questioned Documents

by
Doug Cobb

Abstract: A reliable and repeatable scientific-based method of being able to identify substituted pages in questioned documents has long plagued forensic document examiners for a variety of reasons. Examiners find it difficult to capture and measure differences in sheets of paper. Color spectrophotometry has long been utilized in the manufacture of paper as a quality control tool to control the final color and brightness of the paper. The water chemistry, pulp properties, chemical fillers and color dyes combine to give each paper manufacturer's paper a distinctive set of properties, giving it a unique spectrophotometric "fingerprint." The question is whether a portable spectrophotometer can accurately and reliably measure and differentiate the differences between individual sheets of paper. Results of testing and analysis clearly show that a portable color spectrophotometer is capable of identifying differences in the optical properties of individual sheets of paper within a set of questioned documents, at a 99 percent confidence interval. This ability will greatly increase examiners' ability to identify altered documents or those with substituted sheets.

Keywords: Spectrophotometer, substituted pages, altered documents, paper color, paper brightness, paper fluorescence, ultraviolet examination, color saturation.

Executive summary

Identifying and verifying a substituted sheet in legal documents has long plagued forensic document examiners. While many examiners have tried using various methods, including UV light (see Figure 1) and microscopy to try to determine if a sheet is different from the rest, an accurate and repeatable scientific method has not been readily available. One problem is that the human eye has limitations when distinguishing differences in color. Human factors such as color memory loss, eye fatigue, color blindness and even viewing conditions affect the ability for each of us to see colors the same. The human eye can't equally detect differences in hue (red, green, blue), chroma (color saturation), or lightness and darkness.[1]

Color spectrophotometry has long been utilized in the manufacture of paper as a quality control tool to control the final color and brightness of the paper. A methodology for the use of a portable color spectrophotometer has never been developed to utilize this technology for use in questioned document examinations. An inserted or substituted sheet in a questioned document, or even identifying different sources of paper, can now be identified utilizing this scientific-based methodology, with statistical accuracy and repeatability at a 99 percent confidence interval, as confirmed through my research.

Introduction

Research has shown that the cost of white-collar crime every year is between $300 and $600 billion dollars.[2] A portion of that total is associated with fraudulent activity involving legal documents. Many of those involve substituted sheets, where a new page is created with changes in the content made and inserted back into the document. Common documents for this activity are wills, trusts, stock certificates, contracts and similar documents.

1. A Guide to Understanding Color. "X-rite Pantone." https://www.xrite.com/-/media/xrite/files/whitepaper_pdfs/l10-001_a_guide_to_understanding_color_communication/l10-001_understand_color_en.pdf. Accessed November 23, 2018.
2. Cliff , Gerald & Wall-Parker, April. "Statistical Analysis of White-Collar Crime." Oxford Research Encyclopedias Online Publication April 2017. http://oxfordre.com/criminology/view/10.1093/acrefore/9780190264079.001.0001/acrefore-9780190264079-e-267?print=pdf. Accessed November 23, 2018.

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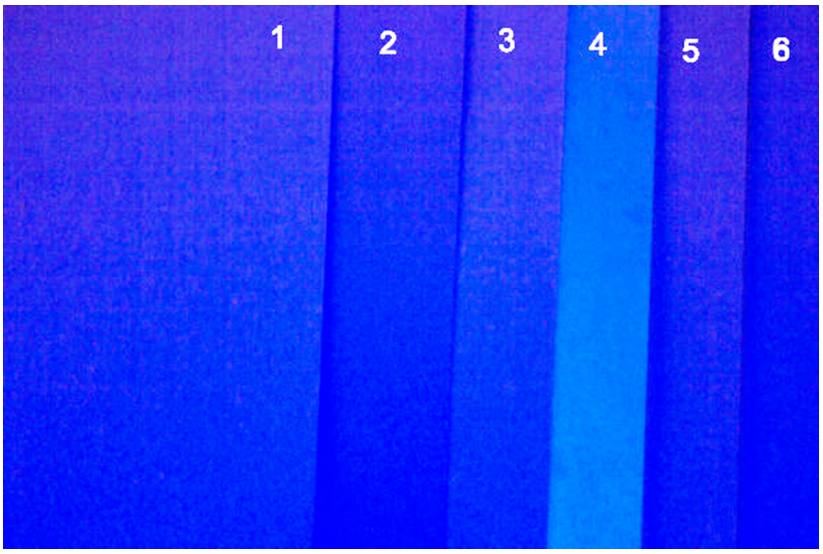

Fig. 1—Optical fluorescence; several sheets of copy paper under UV light

Along with the financial costs there is also a human cost associated with such fraudulent activity including stress, pain and suffering. To find out that someone may have altered a will or trust can be overwhelming. Victims of these crimes often hire attorneys and forensic document examiners to try to determine if someone has changed the original document by substituting a new sheet.

Document examiners use many methods to examine documents for altered or substituted pages, including different types of lighting and microscopes. These testing methods can be somewhat subjective and do not lead to scientific, hard evidence.

The problem

Traditional methods for examining possibly altered or substituted sheets involved looking at the sheets under UV light to see if one of the sheet's appearance or fluorescence is different from the others. The fluorescence of copy paper has changed over time, especially over the past thirty years when efforts were made by paper manufacturers to increase the brightness of paper. There have also been a lot of changes in the chemistry of paper to meet the demands of printer manufacturers, resulting in changes in the optical properties of paper.

Many examiners examine the paper sheets microscopically, often using different lighting filters to look for differences between sheets. Examiners also try to determine if the ink or printing is different in the questioned sheet versus the rest of the sheets in the document.

Even if an examiner appears to find a difference between sheets, it's often difficult to measure or photograph such a difference or show proof of it that can be used as court evidence or exhibits. Also, portable equipment or methods have not been readily available or even capable of providing scientific-based data to determine or quantify these differences in paper. This often makes the solving of these cases difficult and time consuming, adding to the cost of both litigation and the time for analysis.

The science of color

Each color we see has its own distinct appearance, based on three elements: hue, chroma (or saturation) and value (lightness or darkness). Every color can be accurately identified and distinguished from every other color by describing it using three attributes. Hue is how we perceive an object's color—is it blue, red, green, yellow, etc. Chroma describes how vivid or dull a color is, or how close it is to its pure hue or grayish (dull) form of the color.[3]

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As an example, a tomato may be very bright and vivid, while a radish may still be red, but a duller form of red. The luminous intensity of color, or its degree of lightness, is called its value. Colors can be classified as light or dark by comparing their value. For example, the red color of a tomato seems lighter than the red color of a radish.

In order to see or measure color three things must be present: a light source (luminant), an object (sample you are looking at or measuring) and an observer (you or a measuring device). We process color by processing the interaction of light hitting or reflecting off of an object, then perceive it as the color of that object.[4]

Just like our eyes, which need a light source and an object, instruments also need the same in order to measure color as our eyes perceive it. A spectrophotometer measures the amount of light energy reflected from an object at several intervals along the visible light spectrum. The resulting spectral data is shown as a spectral curve, or reflectance curve.

My research utilized the CIE Color Systems Standards, CIE L*a*b* and CIE L*C*h°, the same standards used for papermaking and printing. The CIE, the International Commission on Illumination, is the body responsible for international recommendations for photometry and colorimetry. Both of these color scales are based on the theory of opponent-colors of color vision. Opponent-color theory says that two colors cannot be both green and red at the same time, nor can they be both blue and yellow at the same time. Single values can describe the red/green and the yellow/blue attributes of the color. (See Figure 2.)

The comparison of two colors is usually done by assessing color difference or delta from a known standard. The use of CIELAB and CIELCH are used to compare the colors of two objects. Differences in color are expressed as ΔL* Δa* Δb* or DL* Da* Db*, and ΔL* ΔC* ΔH* or DL* DC* DH* (Δ or D symbolize "delta" or difference). Given ΔL* Δa* Δb*, the total difference in color is stated at ΔE*. (See Figure 3.)

Fig. 2—CIELAB three-dimensional coordinate system

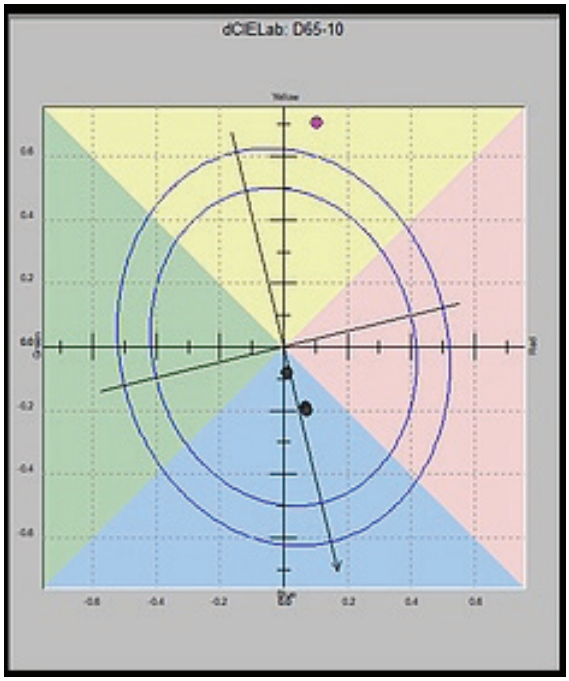

Fig. 3—Δ CIELAB color graph

3. Using Color Tolerances 101. n. d. "X-rite Pantone." https://www.xrite.com/-/media/xrite/files/whitepaper_pdfs/l10-546_guide_to_choosing_the_right_tolerancing_method/l10-546_guide_to_choosing_color_tolerance_en.pdf. Accessed March 24, 2019.

4. A Guide to Understanding Color. "X-rite Pantone." https://www.xrite.com/-/media/xrite/files/whitepaper_pdfs/l10-001_a_guide_to_understanding_color_communication/l10-001_understand_color_en.pdf. Accessed November 23, 2018.

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Use of spectrophotometry in document examination

For years color spectrophotometry has been used by paper manufacturers to measure the color, shade and brightness of the final paper. Paper manufacturers use quality control standards, based on these measurements, to adjust chemical additives to the paper in order to maintain the final sheet properties' uniformity in appearance. Uniformity in the appearance and performance of sheets of paper are closely controlled and documented under TAPPI (Technical Association of Pulp and Paper Industry) and ISO Standards for paper manufacturing.[5]

The water chemistry, pulp properties, chemical fillers and color dyes combine to give each paper manufacturer's paper a unique set of properties. Each paper mill, even specific paper machines, will have a unique "fingerprint" of spectrophotometric properties. Having the ability to measure and differentiate the spectrophotometric properties between each sheet of paper with a portable measuring device, thus giving each individual sheet of paper a unique and measurable "fingerprint," gives the document examiner the capability to accurately assess documents.[6]

Statistical analysis is then performed on the testing data to determine the color variation between the individual sheets of paper within a document, between documents, or to a standard. Through the analysis of the data we are able to measure and determine if a questioned sheet in a document is from the same batch of paper, or if paper from document set "A" matches that from document set "B." The normal variability within and between the individual sheets of paper in a document is determined by comparing specific spectrophotometric properties.

Detailed reports of the findings typically include the comparison of individual sheet properties to a standard and to the other individual sheets within the document. Tables and statistical graphs are also part of the reporting. Table 1 below is an example of the data analysis, with an example of two data points from a substituted sheet.

Although the measurement of color seems rather straight forward, it is in fact complex. There are many factors that can influence the color measurement of paper, both internal and external to the manufacture and storage of paper. The pulping process, type of paper, water source, chemistry, chemistry of dyes and optical brighteners all have an influence on the color properties of paper. Also, the environment where the paper is stored can have an impact on paper's properties. Knowing these processes and what impacts them, and to what degree, is critical when analyzing the spectrophotometric data.

Likewise, a thorough understanding of the set-

Standard Name	L*	a*	b*	C*	h*	DE2000	Date/Time
ScanRite Template Standard	95.24	1.51	-8.55	8.69	280.04	0.00	12/20/2018 ...

Trial Name	DL*	Da*	Db*	DC*	DH*	L*	DE2000	P/F DE2000
ScanRite Page 5-5	-0.01	0.03 R	0.03 Y	-0.03 D	0.03 R	95.23	0.05	Passed
ScanRite Page 6-1	0.06 L	0.06 R	-0.04 B	0.05 B	0.05 R	95.30	0.09	Passed
ScanRite Page 6-2	-0.04 D	0.03 R	-0.02 B	0.02 B	0.02 R	95.20	0.04	Passed
ScanRite Page 6-3	0.03 L	0.04 R	-0.08 B	0.09 B	0.03 R	95.27	0.08	Passed
ScanRite Page 6-4	0.04 L	0.04 R	0.01	-0.01	0.04 R	95.28	0.06	Passed
ScanRite Page 6-5	0.05 L	0.04 R	-0.05 B	0.06 B	0.03 R	95.29	0.07	Passed
ScanRite Sub 1-1	-0.37 D	-0.10 G	2.99 Y	-2.94 D	0.52 R	94.87	2.30	Failed
ScanRite Sub 1-2	-0.40 D	-0.06 G	2.85 Y	-2.80 D	0.53 R	94.84	2.19	Failed
ScanRite Sub 1-3	-0.35 D	-0.15 G	3.17 Y	-3.13 D	0.51 R	94.89	2.44	Failed

Table 1

5. Osborn, Rob. Personal interview. 13 December 2018.
6. Edwards, Frank. Personal interview. 19 November 2018.

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up of the spectrophotometer is critical for proper analysis of the paper. Along with an understanding of the papermaking process, knowing the steps of how paper is converted into individual sheets is key for proper interpretation of the data. These processes also give vital clues to the analysis.

Conclusion

The testing and analysis of legal documents with a portable spectrophotometer provides a scientific-based solution to the century-old issue of identifying and confirming the existence of a substituted sheet within a questioned document or if one paper sheet is the same as the next. Proper use of the technology can provide testing data that is measurable and repeatable, with statistical analytical confirmation. This methodology provides science-based evidence for forensic document examination that judges and attorneys are frequently demanding.

Doug Cobb brings twenty-six years of experience to Paper Forensics, an innovative company specializing in bringing new scientific technology and methods to forensic document examination and legal document security. He has spent twelve of those years as a forensic document examiner. He has held a variety of technical and production positions within the paper industry and has extensive experience in papermaking and printing.

Doug has introduced two patent-pending technologies for advancements in forensic document examination and legal document security, ScanRite™ and SecureDoc5™ .

Doug's vast experience in wet end and surface and colloid chemistry is instrumental in the evaluation of the relationship of paper and ink. His paper science background brings a scientific perspective to paper and handwriting analysis and document security.

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Notarized Signatures: The Document Examiner's Dilemma

by
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In collaboration with Sarah Holmes Tucker, MA

Abstract: This article illustrates factors that cause a dilemma when questioned signatures appear on notarized documents. Procedures for becoming a notary public and the requirements for fulfilling the process of witnessing signatures on official documents are discussed. Includes case studies and a glossary of terms.

Keywords: Document examiner, notary public, commission, affidavits, acknowledgement, oath, jurat, questioned signatures.

What is the purpose of having notaries?

Around the United States there is growing concern about the authenticity of signatures on official documents such as ballots, petitions, election registration forms, checks, wills, witness statements and other important records. To protect the public and private sectors from obtaining illegal or other unlawful signatures, most states use a system of commissioning notary publics. Notaries verify the identity of the person who signs a document in front of them by examining official forms of identification such as driver licenses, passports or other forms of photo identification. In many states, when a signature is notarized it is also recorded in an Official Notary Public Journal that is signed by the person signing the original document. If done correctly, this notarial method actually results in obtaining two signatures—one on the document itself and one in the journal.

If procedures for performing notarizations were strictly followed, document examiners would not be needed to verify notarized signatures or appear in court at all, since signatures would technically all be genuine.

The dilemma: What is old is new

Ninety years ago Albert Osborn wrote about the role of notaries in signature validations in his classic book *Questioned Documents*. The authenticity of signatures on notarized documents was questioned back then and Osborn even thought that such occurrences presented document examiners with situations that showed both negligence and possible unlawfulness in the notarizing system.

> "The formal attestation of a document by a notary public or a commissioner of deeds is supposed to be a positive validation of it, as having been signed by the one by whom it purports to have been signed, and this would be true if certain careless practices in this country were not so common. It is unfortunately a fact that this formal act, accompanied as it should be by a solemn oath, has been cheapened and degraded and in many instances the attestation act is performed with a carelessness that is almost if not actually criminal.
>
> "Thousands of documents are attested for those who are total strangers to the officer, and signatures are attested on documents in the absence of the alleged writer, and attestations are put on documents not yet signed.
>
> "There is no doubt that justice will be safeguarded by following some of the excellent practices of the notarial system in operation in Louisiana and the province of Quebec, Canada. One important change that would bring about needed improvement would be much greater care in the appointment of notaries and commissioners and more severe penalties for violations, or careless disregard, of the duties of the important office."[1]

How difficult is it to become a notary?

In most states, if a person is 18 years old, a U.S. citizen, able to read and write English and has not been convicted of a felony within the previous ten years or a misdemeanor in the previous two

1. Osborn, Albert. *Questioned Documents*. Boyd Printing Company, Albany, NY, 1929, p.687.

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years, it is easy to apply to become a notary. With the completion of a state application in the county of residence, the taking of an oath at the county clerk's office that the information is accurate, and the payment of a small fee, almost anyone can become a notary public. Once approved by the state, an additional bonding fee is required before official notarizing can begin. Fees for notarizing a document are nominal and are made on a per case basis. Perhaps the process for becoming a notary is part of the problem since there are very few states that offer extensive training or testing of notaries.

What is the challenge for document examiners?

When signatures are questioned, there is an understanding among examiners that the contents of the signed document are in dispute. Whether the signature is on a last will and testament, a car title, the transfer of property with a deed, an employment contract, an IOU, an insurance beneficiary form or another type of contract, there is a disagreement by the parties involved. When such a document has the signature and date of signing of a notary public on the jurat (i.e. acknowledgement) and an official stamp or embossment, there is purportedly an eyewitness to the signing of the disputed signature. These features normally add weight to the likelihood that it is a genuine signature and the credibility of the action since a notary has identified a person and actually witnessed the signing of the signature. In executing a jurat the notary will ask the individual to take an oath as to the content of the document. Requirements differ between states; detailed descriptions of such requirements may be found on their individual websites.

A jurat implies that the notary asked the signer to take an oath to what s/he is signing and actually sees the person write the signature on the document. The notary witnesses the act of signing and the document will say "subscribed before me."

An acknowledgement indicates that the document was already signed by someone who had proved who they are and that they in fact signed and acknowledged said document. The signature block states as "acknowledged" on a particular date but does not confirm that it was signed by that person. If unable to verify the authenticity of the signature the notary must request that the document be signed again.

Although the content of documents, deeds and written wishes upon death may cause disagreements and disputes, if the protocols for notaries are precisely followed, most cases involving notarized signatures would not end up in court.

How does the document examiner demonstrate the findings before a jury or a judge?

Document examiners inspect many signatures that are witnessed or notarized. When those signatures are determined by the examiner to be non-genuine, it becomes apparent that the signatures were not signed in front of the listed notary. This means at least one side in the dispute is not forthcoming in their statements. Either the person was there and signed the document or they were not. It is the juries and judges who must then weigh the evidence, explanations, exhibits and credibility of the document examiner, as well as the testimony of the notary, witnesses and/or opposing examiner. The following court cases demonstrate some variances of notary signings.

Case Study #1—Warranty deed

Representing the estate of Horace Green in a jury trial, the document examiner was asked to review a notarized Warranty Deed done with an acknowledgment of its signing. With the use of composites, color photographs and enlargements, it was possible to show dissimilarities between the questioned and known signatures. Displaying a comparison chart with individual letter formations engaged the jury during testimony. Jurors could see for themselves the differences in the less conspicuous parts of the letter shapes. The jury returned a verdict that the property was not legally transferred and that, although notarized, the Warranty Deed was not signed by Horace Green and he could not have acknowledged his signature. After the trial, it was learned that a doctor testified

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WARRANTY DEED — 861
Available from TARGET INFORMATION MANAGEMENT, INC. • P.O. Box 22003, Lansing, MI 48909 (State Bar of Michigan Form)

LI 25016 PA 155

The Grantor(s) Horace Green, a single man
4508 Letson Street, Brighton, Ala. , whose address is

convey(s) and warrant(s) to Clifton & , his wife

whose address is Detroit, Michigan

the following described premises situated in the City of Detroit, County of Wayne and State of Michigan:

Lot 115 THE MILLS SUBDIVISION NO. 4, Liber 28, Page 8 of Plats, Wayne County Records (Commonly known as 6845 Mack Ave.)

91026554

for the sum of FOUR THOUSAND ($4,000.00) Dollars

subject to easements and building and use restrictions of record and further subject to

Dated this 8th. day of November , 1990

Signed in presence of:

Douglas D.

Willie Green

Signed by:

X Horace Green

Horace Green

No. 49626
City Taxes against the within described property are paid: Current city and current special taxes excluded (C.L. 48 Section 211.135).

FEB 25 1991
Virginia Sikora, Treasurer
By Wayne County C. Higgins

91 FEB 25 P1:12:05

STATE OF MICHIGAN, } SS.
COUNTY OF Wayne

The foregoing instrument was acknowledged before me this 8th. day of November 19 90, by Horace Green

Douglas D.
Notary Public, Wayne County, Michigan
My commission expires: June 9, 1992

This is to certify that there are no tax liens or titles on this property and that taxes are paid for FIVE YEARS previous to date of this instrument EXCEPT 1990 not examined

No. 48

County Treasurer's Certificate WAYNE COUNTY TREASURER

Date 2/27/91 Clerk

City Treasurer's Certificate

Fig. 1—Case Study #1: Questioned Document

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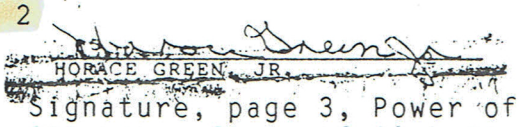
QUESTIONED

QD-1 Signed by: Horace Green

Signature on Warrenty Deed, 11/8/90
Lot 115 The Mills Subdivision No. 4
Liber 28, pg 8 - Wayne County, MI

QD - 2 

Signature, page 3, Power of Attorney, State of Alabama 6/4/90

KNOWN

K - 1 Horace Green
HORACE GREEN

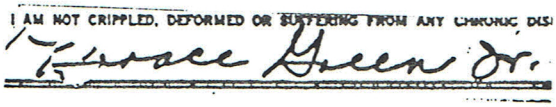
Signature on page two, Last Will and Testament of Horace Green. 12/17/69

K - 2 Horace Green

Signature card for joint bank account/NBD Office #24
Faxed copy.

K - 3 Horace Green Jr.

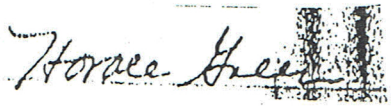
Signature on Chrysler Corporation Employment Record
Undated.

K - 4 

Signature on Chrysler Corporation Employment Record
Undated.

K - 5

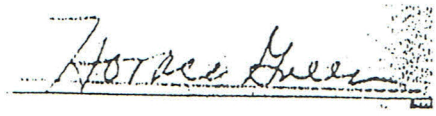
Signature on NBD savings withdrawal slip, 10/25783

K - 6 

Signature on NBD check # 1731
9/25/87

K - 7

Signature on NBD check # 1739
10/8/87

K - 8 

Signature on NBD check # 1695
7/22/87

Fig. 2—Case Study #1: Questioned & Known Signatures

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Mr. Green was unconscious at the time of signing. (See Figures 1-2.)

Case Study #2—Affidavits signed by attorney

Retained by the owner of a building, the document examiner was asked to review two affidavits allegedly signed by the renter concerning the renewal of a rental agreement. The questioned documents (QD-1 and QD-2) were notarized affidavits allegedly signed by the renter of the space. His known (K) signatures, on very poor quality copies, were examined, and although the opposing attorney testified that the signatures were his client's signatures, it was this examiner's testimony that the known person did not sign the affidavits. Opposing counsel testified that they were fast versions of the renter's normal signatures.

The signatures on the affidavits were also notarized by a secretary who testified in court that she witnessed the signings. In examining the entire file at the building owner's attorney's office and in the courthouse records, it became clear that the affidavits were in fact signed by the opposing attorney whose standard (S) signatures were examined for the purpose of comparison and identification.

The opposing side presented testimony from an attorney client saying it was a fast form of his own signature, testimony from his secretary/notary and

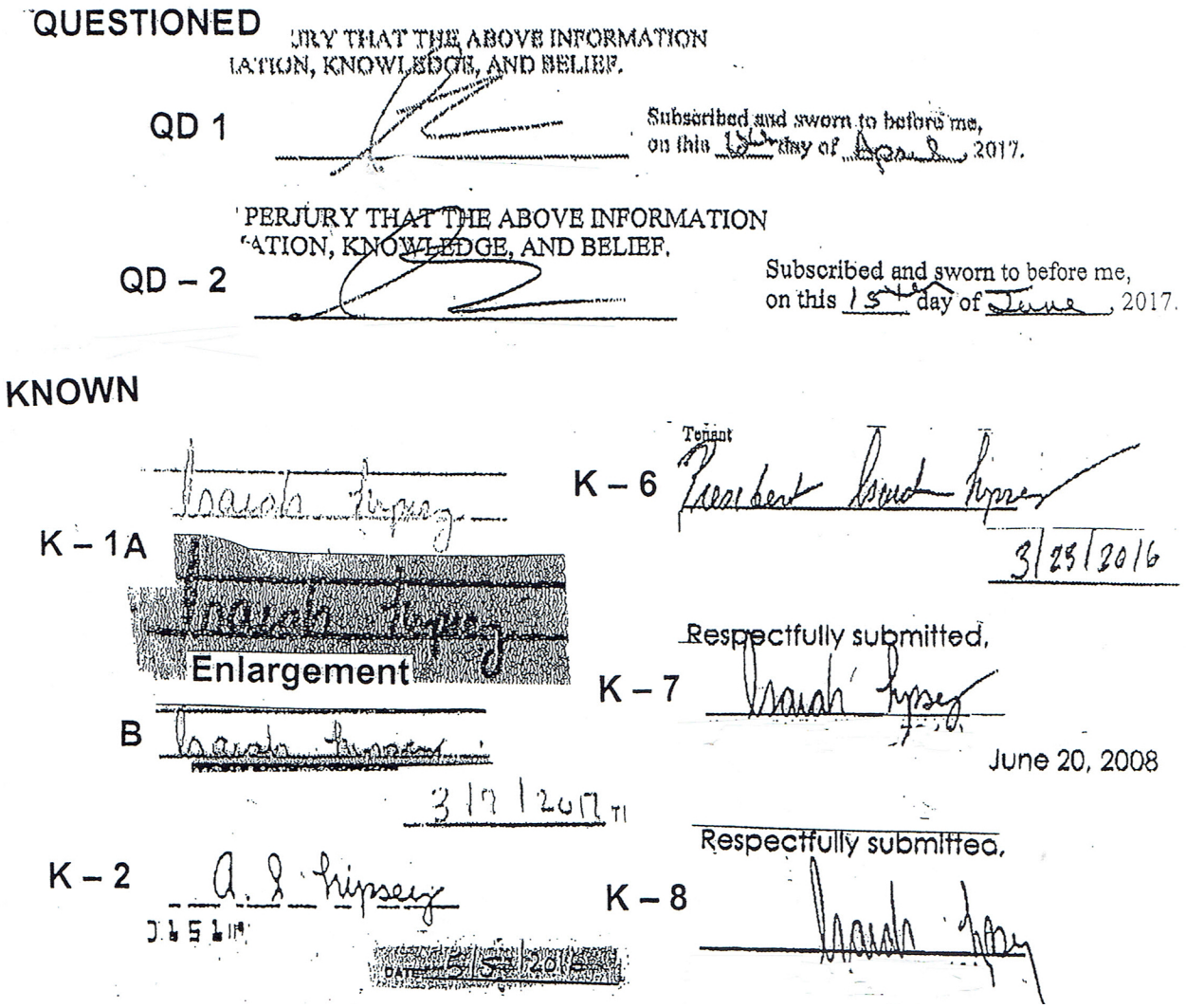

Fig. 3—Case Study #2: Questioned Signatures Compared to Known Signatures

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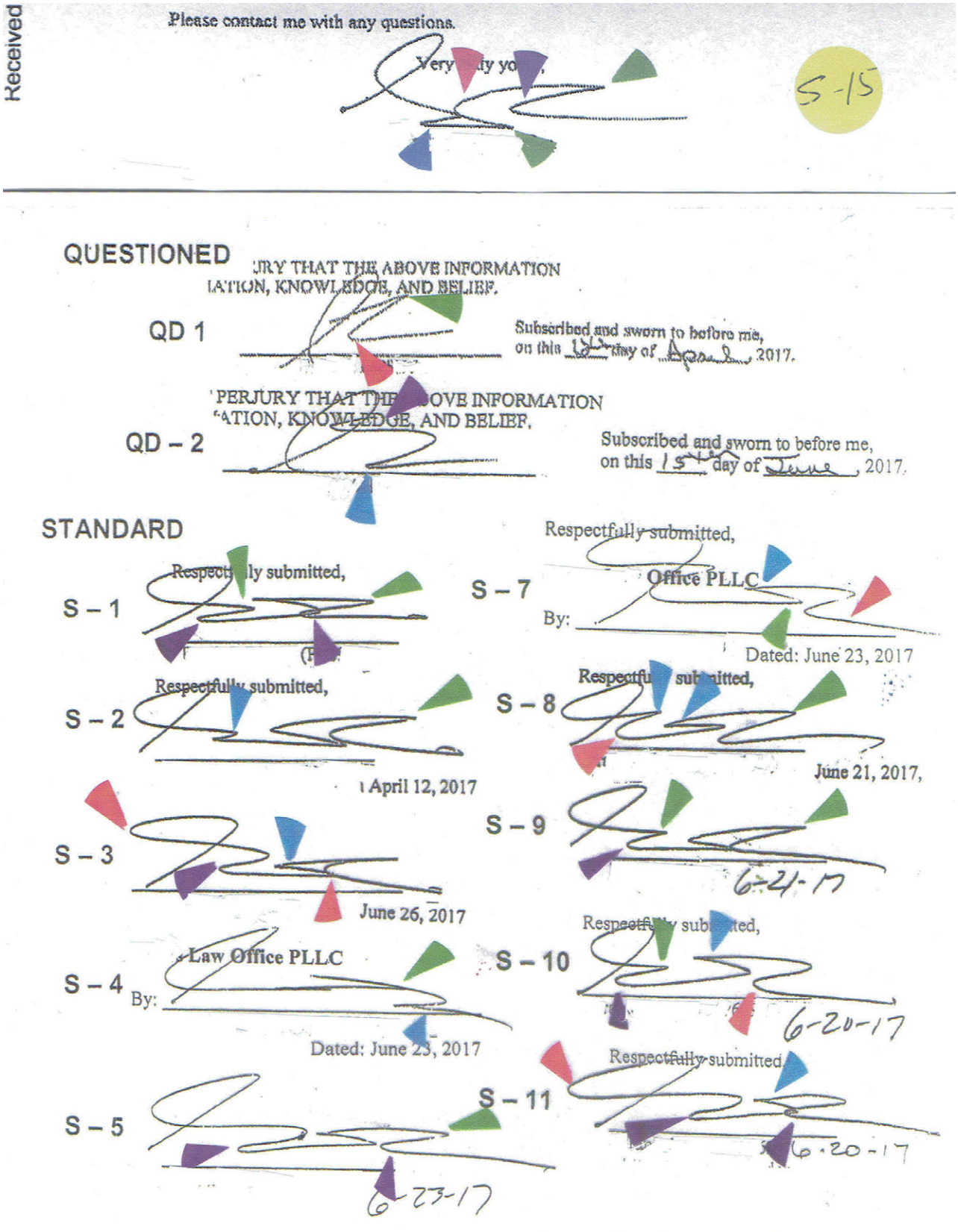

Fig. 4—Case Study #2: Questioned Signatures Compared to Standard Signatures

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an opposing document examiner who testified (without exhibits) that the questioned signatures were fast variations of the usual signature. Using detailed composites, colored markings and colored overlays it was possible to point out the multiple similarities to the standard signatures of the acting attorney. It might have been for reasons of expediency that the attorney signed the affidavits for his client, but the judge in this bench trial ruled that exhibits had demonstrated the findings of this document examiner. (See Figures 3-4.)

Case Study #3—Last will and testament before suicide

Representing the long-term partner of the deceased (Jason), the document examiner was asked to examine the hand-printing on a holographic Last Will and Testament leaving everything he owned to his girlfriend Cindy. It was compared to known printing on a two-page letter to her along with 21 other known documents. The will was signed and stamped by the secretary of Jason's attorney who witnessed him writing the document. Jason took his life shortly after writing his will. Jason's family contested the printing on the will. The examiner's testimony was that the will was printed by the same person whose known printing was analyzed. The judge found the handwriting testimony to be non-credible since only copies were examined before coming to court. The original documents, being held by the police until they were brought to court for the bench trial, were not examined until just before testimony. The notary/witness to the will was found to be non-credible since she worked for Jason's attorney. Cindy was found to be non-credible because she was too upset on the stand. (See Figures 5-6.)

Is there a solution to improving the qualifications and training of notaries?

The answer to this question is the need for more education about the role and importance of notaries in the judicial system. With advancing forms of verification in notarizing signatures with videos and electronic signatures, perhaps the standards for notaries will be changing. In the meantime, document examiners should be aware of county and state requirements for notaries. Even taking the training to become a notary and staying current on signature modalities will help in understanding how notaries function and how they should perform their responsibilities. Every state has vast amounts of information on their government website including detailed descriptions about the duties of notaries.

Is there a role for document examiners in the offices of the Secretary of State?

Nationally, the role of the Secretary of State and the Office of the Great Seal has expanded in many ways from overseeing elections, registering voters, gathering petitions and even verifying signatures at election time. Witness what happened in Georgia when almost 50,000 votes were set aside since early voter registration form signatures did not appear to match current signatures. A judge ruled that the ballots had to be counted even though voters' signatures had changed over time.

Document examiners could have been helpful in another state where absentee ballots were collected and completed by the same person. This action invalidated the ballot count and the result was the call for a new election.

If document examiners were part of the instruction process, they could explain to notaries in training how signatures may change over time and instruct them about ranges of variation that are normal but not disqualifying.

Now is the time for document examiners to became active participants of the team that improves the quality of services in the office of the Secretaries of State, including the training of notaries and the preparation of petitioners in collecting signatures for ballot issues and referendums. With better education of notaries, there might be opportunities for document examiners to use their knowledge, training and experience to assist in raising notary publics to more professional standards.

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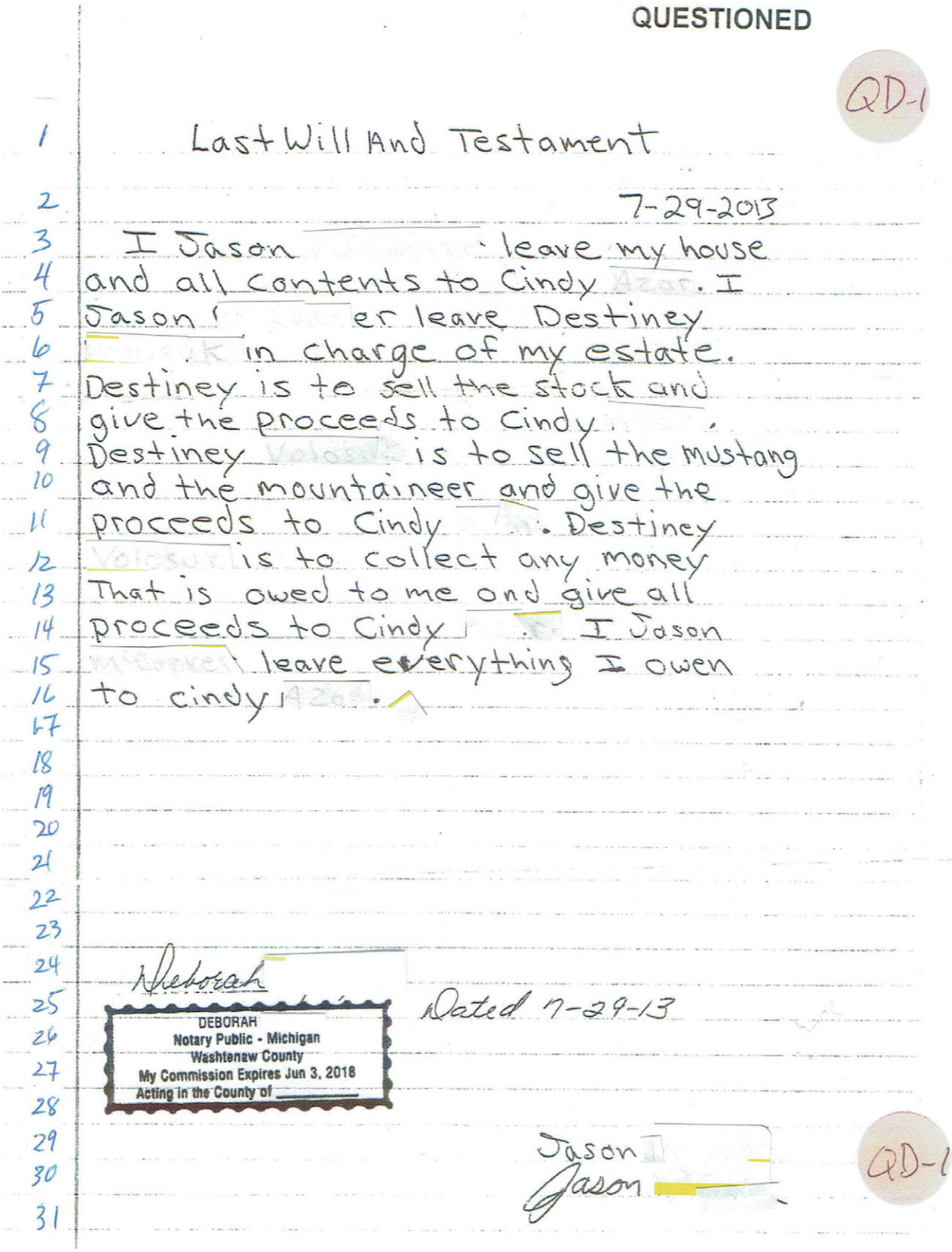

Fig. 5—Case Study #3: Questioned Document

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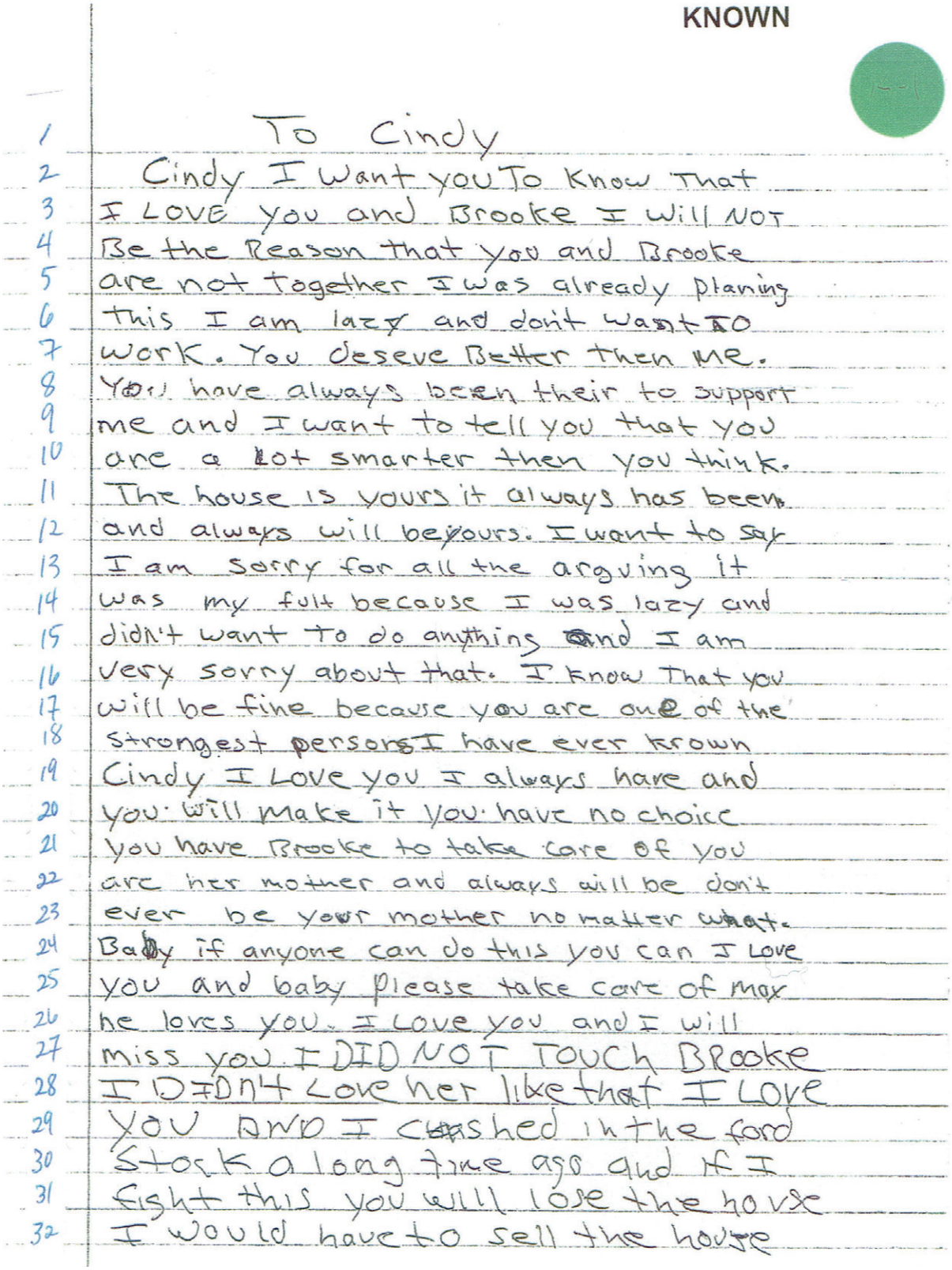
KNOWN
To Cindy
Cindy I Want you To Know That
I LOVE you and Brooke I will NOT
Be the Reason that you and Brooke
are not Together I was already planing
this I am lazy and don't want TO
work. You deseve Better then me.
You have always been their to support
me and I want to tell you that you
are a lot smarter then you think.
The house is yours it always has been
and always will be yours. I want to say
I am sorry for all the arguing it
was my fult because I was lazy and
didn't want to do anything and I am
very sorry about that. I know That you
will be fine because you are one of the
strongest persons I have ever known
Cindy I LOve you I always have and
you will make it you have no choice
you have Brooke to take care of you
are her mother and always will be don't
ever be your mother no matter what.
Baby if anyone can do this you can I Love
you and baby please take care of mom
he loves you. I Love you and I will
miss you. I DID NOT TOUCH Brooke
I DIDN'T Love her like that I Love
YOU AND I crashed in the ford
Stock a long time ago and if I
fight this you will lose the house
I would have to sell the house

Fig. 6—Case Study #3: Known Hand-printing

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Glossary of Notary Terms

The following glossary might prove useful in providing a basic understanding of the terms and functions of notary publics. It comes from a training handout of the American Society of Notaries (ASN). (http:// *www.asnnotary.org/index.php?form=termsanddefinitions*)

Acknowledgement. A formal declaration before a notary public or other authorized person by an individual signing an instrument that such execution is his or her free act and deed, and that it was signed willingly for the purpose defined in the instrument.

Affiant. Person who makes and subscribes an affidavit.

Affidavit. A written statement of facts made voluntarily, verbally confirmed to be true by an oath or affirmation, and signed before a notary public or other person authorized to administer oaths.

Affirm. To make a solemn, formal declaration of the truth of a statement or testimony, under penalty of perjury.

Affix. To attach or impress the notary seal to a document.

Apostille. A certificate of notarial authority issued by the Secretary of State, the Lieutenant Governor or the county clerk's office, usually needed to authenticate documents going to foreign countries. Testifies to the validity of the notary.

Attest. To certify or bear witness to, to affirm to be true or genuine.

Attorney-in-fact. An individual authorized to act in another's behalf by power of attorney.

Authentication. Process of verification of notarial authority, usually used when a document is going to a foreign country that does not recognize or accept the authority of the Apostille.

Certified copy. An exact, complete and unaltered copy of a document that is not a publicly recorded document, signed as a true copy of the original by the public official who made the copy. Note: Notaries in some states are authorized to make certified copies; notaries in other states are not authorized to do so. In the latter, notaries may take an affidavit from the document holder, called a certification of a copy. This affidavit states the document holder, not the notary, made a copy of the original document, and the notary completes a jurat.

Coercion. Forced or compelled into compliance, through fear, intimidation, or threats. A notary must ensure that no coercion is used in the signing of a document. All parties must sign willingly. If the notary suspects coercion he should refuse to notarize the document.

Commission. The certificate verifying appointment as a notary, authorizing the notary to perform the official acts of that office. Also refers to the term of office. Commission term varies in length, depending on your state, from two years to lifetime appointments.

Deed. A document by which a person conveys (transfers) real property.

Jurat. The notary's written certificate on any sworn statement or affidavit. Document must be signed and sworn to or affirmed before the notary.

Oath. A solemn affirmation of the truth of any statement, under penalty of perjury.

Perjury. Making a false statement under oath or affirmation. Usually punishable by fine, prison term, or both.

Personally known. Having an acquaintance derived from association with an individual, which establishes the individual's identity with at least a reasonable certainty.

Power of attorney. A document authorizing a person to act as another's agent or representative for a specific purpose.

Principal. The person making the power of attorney.

Reasonable care. That degree of care which a person of ordinary prudence and intelligence would exercise in the same or similar circumstances. Failure to exercise such care is negligence.

Satisfactory evidence. Acceptable identification

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of an individual not personally known to the notary. Identification must have a photograph, physical description and personal data about the individual, such as height, date of birth, and is preferably government-issued.

Subscribe. To sign a document. "To sign at the bottom of a document," from Latin subscriber "write, write underneath, sign one's name; register," also figuratively "assent, agree to, approve," from sub "underneath" + scribere "to write."

Swear. To take an oath.

Testator. Person making a will.

U.P.I. An abbreviation for the "Unlicensed Practice of Law." Notaries should proceed with extreme caution whenever asked to perform duties that appear to have legal implications.

Venue. The location (state and county) where the notarial act actually takes place.

Will. An instrument by which an individual makes a disposition of his/her real and personal property, to take effect after his/her death.

Ruth Holmes, CDE is a professional handwriting and document examiner whose forensic firm, Pentec, Inc., in Bloomfield Hills, Michigan, advises individual, legal and corporate clients in the U.S. and overseas. She is certified by NADE and is a Diplomate and Life Member of NADE. She is currently acting as NADE Vice-President and has served in many positions within the organization since the early 1980s. She is qualified as an expert witness in federal, state and local courts.

For almost 25 years, Ruth has worked as a document examiner for the Office of the Oakland County Prosecutors Office in numerous criminal trials in Michigan. She is a nationally recognized speaker, media guest, writer, and jury and trial consultant.

Her daughter, *Sarah Holmes Tucker,* completed her graduate work at Boston University, joined Pentec, Inc. in 1997, and lives near Boston.

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Exploring Different Techniques for Developing Indented Writing on Paper

by
Kathryn M. Kohler

Abstract: This paper explores indented writing and the assorted techniques available to clarify these indentations. Techniques discussed include oblique lighting, EDD/ESDA devices, gel lifting, black powders, and iodine. Through experiments, the effectiveness of these techniques is examined using both plain white copy paper and glossy magazine paper. Can one be successful examining indented writing without the use of an ESDA? Are other options just as effective?

Keywords: ESDA, gel lifting, handwriting comparison, indented writing, iodine, oblique lighting.

Document examiners must often consider indented writing in their practices. Multiple techniques for examining indented writing have been developed or hypothesized, the most commonly used being the Electrostatic Detection Apparatus, a machine which can develop some indented writing with use of a Mylar film and black toner particles. However, this machine can be expensive and some labs do not have access to this technology, so there is a need for less costly alternatives which could still be considered non-destructive to the document but provide reliable results.

Kelly and Lindblom define indented writing as follows: "Whenever two or more sheets of paper are stacked, traces of the writing executed on the top page tend to become indented on the sheets below."[1] These indentations are often difficult to read or possibly invisible to the naked eye. Therefore techniques have been developed to aid in deciphering them.

Indented writing can be important in criminal and civil cases, as it can provide clues and/or assist with sequencing during an investigation. Indented impressions can possibly help identify the writer of a document or prove documents have been altered, added to, or pages removed. So techniques and equipment should be available to the examiner to facilitate the reading and comprehension of indented writing.

It is important, however, to realize that not all indented writing can be successfully developed no matter what technology is being used. This may be due to the lack of clarity of the indented writing in general, damage to the document such as creases and folds, overlapped indented writing, and/or the number of paper sheets which were above the indented writing, among other issues.

Current techniques being used to look for and examine indented writing include oblique lighting and the Electrostatic Detection Apparatus (EDD or ESDA). With oblique lighting, a document is exposed to lighting at various oblique angles. This creates shadows on the document which can aid in the reading of the indentations. The light may have to be moved and the angle changed several times to see a complete image of all of the indented writing.[2] This technique can allow for the indented writing to be photographed, "…but because all the variations in the lighting conditions cannot be used in one exposure, a photograph will not reproduce all that can be observed by actual examination."[3]

Of course, multiple photographs can and should be taken under different lighting conditions to get a "bigger picture" of all of the indented writing. Additionally, this technique is affected by how clear/deep the indentations actually are; oblique lighting may not help with pale or faint indented writings.

Most examiners nowadays use an Electrostatic Detection Device to clarify indented writings.

1. Kelly, J. S. & Lindblom, B. S. *Scientific Examination of Questioned Documents*. CRC Press, Boca Raton, FL, 2006, p. 309.

2. Ellen, David. *Scientific Examination of Documents: Methods and Techniques*. CRC Press, Boca Raton, FL, 2006, p.174.

3. Ellen, p. 174.

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With this machine, a document is placed on a platen and vacuumed to the surface. Plastic film or a Mylar sheet is placed and smoothed over the document. The whole setup is then charged using a corona wand and then developed with black toner (TAD) in an effort to develop the indented writing. The TAD sticks to the crevasses of the indented writing to make them visible.[4] All of this must be done in a humid environment, which results in better development with the TAD.

It has been found that this apparatus tends to be more sensitive and better at developing lighter indented writing. However, sometimes the document does not react as expected and/or the ESDA provides negative as opposed to positive images of the indentations.[5]

Additionally, it is believed by some that the ESDA actually works due to the "…moving pressure applied to a paper surface in contact with other pieces of paper."[6] So the ESDA may not develop indented writing which was made by an instrument scratching into a surface, even though the indentations are usually obvious to the naked eye. Consequently, examiners may need to try other techniques besides use of the ESDA.

Examining a document for indented writing must involve non-destructive tests, including oblique lighting. Most examiners today consider the ESDA to be non-destructive as well, though there are studies which question this determination. In the published study entitled "The Electrostatic Detection Apparatus (ESDA): Is It Really Non-destructive to Documents?" by Diane K. Tolliver,[7] it was found that the machine can actually affect and/or damage the handwriting on a document if it was written in pencil. So it may not be safe to say that ESDA is completely non-destructive with all types of documents.

Due to the desire for more non-destructive and possibly less expensive techniques, there has been the suggestion for many years of using gelatin (gel) lifters, a product commonly used in crime scene processing to lift and collect shoe and latent fingerprint impressions.

Gel lifters consist of a thin sheet of slightly tacky gelatin on a backing sheet. When this backing sheet is pulled off, the tacky surface is exposed which can be placed on an impression (or whatever else is desired to be lifted). BVDA, a forensic supply company, describes gel lifters as "…thick, non-aggressive, low-adhesive...possible to lift from almost every surface, including porous materials such as paper or cardboard."[8] The product information sheet goes on to actually discuss using gelatin lifters as a way to "...render indented writing visible," claiming that the product is especially effective with glossy surfaces like magazine pages. It is important however to note that gel lifters, if they are successful, will produce a mirror image of the indented writing.

The discovery of a possible technique using gelatin lifters which could be used instead of an ESDA led to the article "Gelatine Lifting, a Novel Technique for the Examination of Indented Writing"[9] and ultimately to the development of the experiment described later in this paper. In the article, the authors created indented writing using multiple paper sources—from copier paper to glossy paper. Each sample was then "lifted" using a gel lifter to see if the indented writing developed. These samples were further compared to the results of each sample run through the traditional ESDA machine. The study revealed that gel lifters produce far better results when lifting from glossy papers as opposed to the typical photocopier or writing paper. In those instances, ESDA or a com-

4. Foster & Freeman, Ltd. *Quick Start Guide, ESDA-Lite*. Issue 04, 2006, pp.1-2.

5. Ellen, p. 179.

6. Ellen, p. 179.

7. Tolliver, D. K. The electrostatic detection apparatus (ESDA): Is it really non-destructive to documents? *Forensic Science International*, 1990, 44, pp. 7-21.

8. Gelatin Lifters, Product Information. Retrieved from http://www.bvda.com/EN/download/en_gellifters.pdf.

9. De Koeijer, J. A., Berger, C. E. H., Glas, W. & Madhuizen, H. T. Gelatine lifting, a novel technique for the examination of indented writing." *Journal of Forensic Science*, 2006, 51(4), pp. 908-914.

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bination of ESDA and then gel lifting was found to be better.

So does the gel lifting technique work well enough to be implemented in lab work? Are there possibly other methods which could be as effective or even more effective?

Experiments

The experiments conducted for this paper consisted of using multiple "low-tech" techniques to see if indented writing could be developed without the aid of an ESDA.

Gel Lifting

The initial concept for the experiment was to focus on the gel lifting technique, but this proved to be not completely fruitful. The original idea was to create multiple indented writing samples using plain copy paper and glossy magazine paper. These samples were left sitting out from one day up to one month to see if gel lifting was more effective as time progressed. It was discovered that time did not really matter as gel lifting could be just as effective if done immediately after the indented writing was created or if the writing sat for up to a month.

One interesting finding was that clear results were obtained using both types of paper; the glossy paper did not produce anything better than that of the plain copy paper. Based on the article mentioned earlier in this paper, it was expected that the gel lifting technique would have been more effective on glossy paper. (See Figure 1.) It is important to note that the adhesive on the gel lifters was not tacky enough to damage either type of paper used, though thinner papers like newspaper and tissue paper would probably be adversely affected by using this technique.

Oblique Lighting

Additional testing was performed using other techniques to develop indented writing. The first was to take the indented writing samples, again made on white copy paper and glossy paper, and use the oblique lighting technique described earlier. This technique proved to be effective on both types of paper, though limitations of the technique were made evident when dealing with the pattern printed on sections of the glossy magazine paper. When the indented writing was on a page of the magazine with consistent color, the image was easy to see and photograph. With the pattern present on the paper, the indented writing was partially visible, but was harder to photograph. (See Figure 2.)

Black Powder

The document was dusted, using black powder, to see if the powder would go into the crevices of the indented writing and could ultimately be lifted off of the document using the gel lifting technique. Black magnetic powder, finer than normal black

Plain white copy paper Glossy magazine paper

Fig. 1—Gel Lifts Collected Immediately After Creation of Indented Writing

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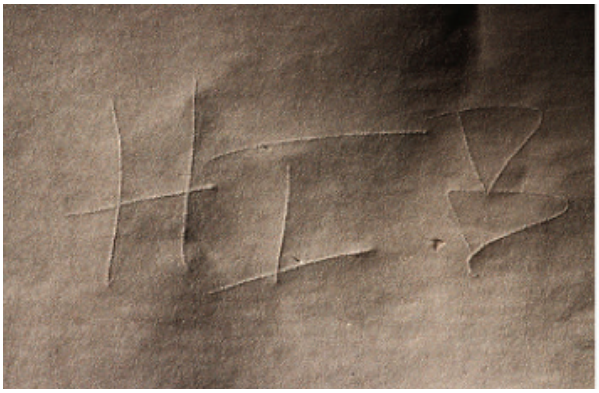
Plain white copy paper



Glossy magazine paper, one color

Glossy magazine paper, patterned

Fig. 2—Oblique Lighting Technique

powder used in most latent print crime scene work, was applied to the document surface. Unexpected results occurred with both papers. With the white copy paper, the powder adhered to the surface of the paper and did not go into the indentions, resulting in a similar result to that of shading. While the powder did somewhat stick to the surface of the glossy paper, it was definitely not as much as the copy paper and did not enhance the indented writing. (See Figure 3.)

As the black magnetic powder cannot be removed from the surface of the document, this is to be considered a destructive test not recommended for indented writing examination except when all other techniques available have been exhausted.

Iodine

Looking for a non-destructive technique, iodine was tried as a way to develop the indented writing. Iodine is commonly used with fingerprint development; the iodine reacts with the fats left in a latent print to turn the print a rusty-brown color. Iodine quickly disappears, however, so photographs need to be taken immediately. It is important to remember that the reaction lessens the more the iodine is applied, so if both a document examiner and a latent print examiner want to use iodine on the document, it may be useful for both to jointly process the document with iodine and then quickly photograph whatever develops for their respective department.

In the experiments it was found that the iodine developed the indented writing especially well on the plain copy paper. The technique was less successful with glossy paper. (See Figure 4.)

Due to the successful results with copy paper, additional indented writing samples were made by writing on a piece of copy paper stacked on top of

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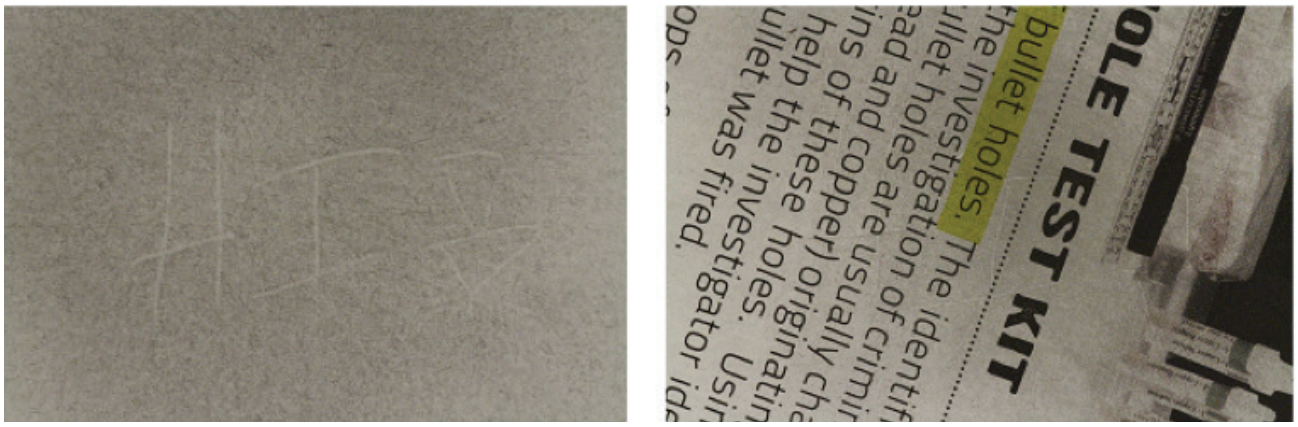
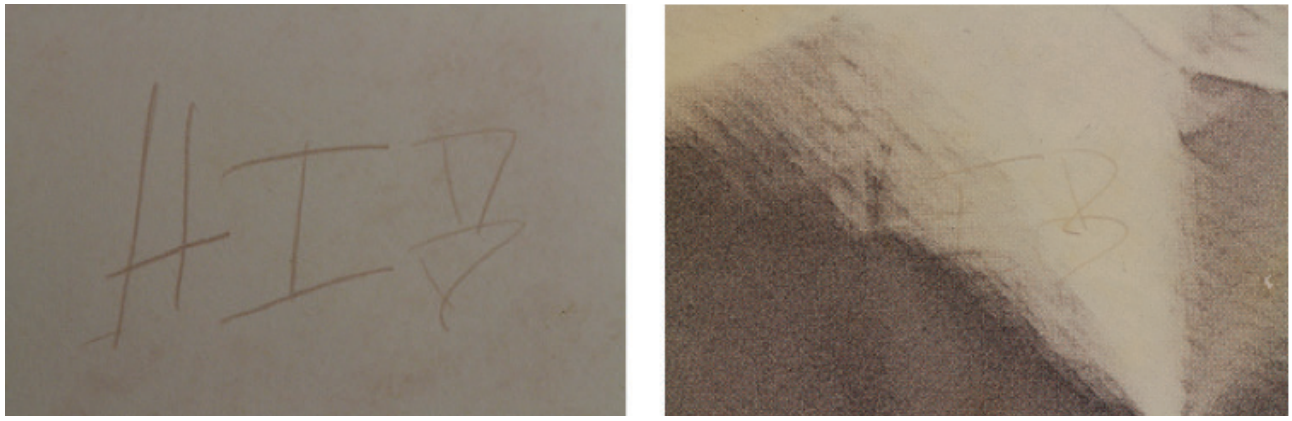


Plain white copy paper | Glossy magazine paper

Fig. 3—Black Magnetic Powder on Paper, No Additional Light Source



Plain white copy paper | Glossy magazine paper

Fig. 4—Iodine Processing of Indented Impressions

seven additional pages. These samples were made with "normal" writing pressure (normal for the author) and with a writing pressure thought to be harder than normal. It was found that with hard pressure, iodine was able to develop indented writing down to the fifth page below the page with the writing. With normal pressure, the iodine was able to develop the indentations on the page directly below the page with writing, but no other indentations were developed on subsequent pages.

Conclusion

Through the process of these experiments, it is evident that other techniques can be used besides ESDA to further develop and examine indented writing. While the ESDA would still be considered the most sensitive for this line of work, there may be times that this machine would be ineffective and simple oblique lighting would be best. It is possible, especially when dealing with indented writing created on the page just below the written page, to develop the indented writing with simpler and more cost-effective options. This would be especially useful for those laboratories that do not have access to an ESDA machine.

Kathryn Kohler holds a graduate certificate in forensic document examination from East Tennessee State University. She presented her research paper leading to this article at the 2015 NADE conference in Nashville, Tennessee.

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NADE Members' Recent Contributions to the Field

Edited by Reed Hayes, CDE

The work of **Jacqueline A. Joseph, B.A., CDE, D-BFDE** of Portland, Oregon, is included in *Criminalistics: An Introduction to Forensic Science. Twelfth Edition* by Richard Saferstein, PhD, Forensic Science Consultant. (Pearson Education, Inc., Hoboken, New Jersey, 2018.)

Criminalistics strives to make forensic science understandable and meaningful to the non-science reader. Depicting an appreciation for scientific principles and the role of forensic science investigations, it is widely used as a college textbook in criminal justice and law enforcement.

The text discusses and illustrates a variety of items of physical evidence commonly encountered at crime scenes. Chapters include various techniques for the proper collection and preservation of evidence at crime scenes including the use of current day digital devices and technology.

By combining case stories with the applicable technology, *Criminalistics* illuminates the purpose of forensic science investigations with the growing problems of the "CSI Effect." High profile crime stories about O. J. Simpson, Casey Anthony, Michael Jackson, Anna Nicole Smith, JonBenét Ramsey, Brandon Mayfield and others are included.

The text was written by well-known authority Dr. Richard Saferstein who, in 2006, received the AAFS Paul L. Kirk Award which is the highest honor awarded in the Criminalistics Section of The American Academy of Forensic Sciences (AAFS). He has authored or co-authored forty-five technical papers and book chapters covering a variety of forensic topics. The content of *Criminalistics* reflects Saferstein's experience as both an active forensic scientist and an instructor of forensic science at the college level.

Additionally, Dr. Saferstein is the author of *Forensic Science: From the Crime Scene to the Crime Lab. Third Edition* (Pearson 2009 & 2015). Covering the realm of forensics and its role in criminal investigations, it strives to make the technology of the modern crime laboratory clear and comprehensive to the non-scientist.

Ms. Joseph's work as a forensic document examiner is included in the chapters devoted to document examination in Saferstein's books by illustrating how she determines whether or not a page in a multi-page document has been altered or substituted.

One illustration shows the results of Ms. Joseph's examination of a multi-page document when she discovered unnatural activity evident in the staple-holes in the middle page (two staple holes) that was different from the four staple-hole pattern in all of the other pages. This pattern differentiation was evidence that the multi-page document was changed by slipping in a replacement page. (See Figure 1.)

Another illustration in *Criminalistics* shows Ms. Joseph's work in a case involving an investigation of suspicious activity concerning an important multi-page document. Ultraviolet illumination clearly exposed differences in the fiber content of the middle page as compared to the other pages, evidence that the middle page had been substituted. (See Figure 2.)

Michael Wakshull, MSc, CQE of Temecula, California, recently published *Forensic Document Examination for Legal Professionals: A Science-Based Approach* (2019, ISBN 978-0-9857294-5-5, 191 pages).

The target audience for this publication is attorneys, paralegals, and anyone who retains forensic document examiners. This book is an in-depth guide to help attorneys and legal professionals avoid common pitfalls in using forensic document examiners. It dispels misunderstandings about the work performed by document examiners and how

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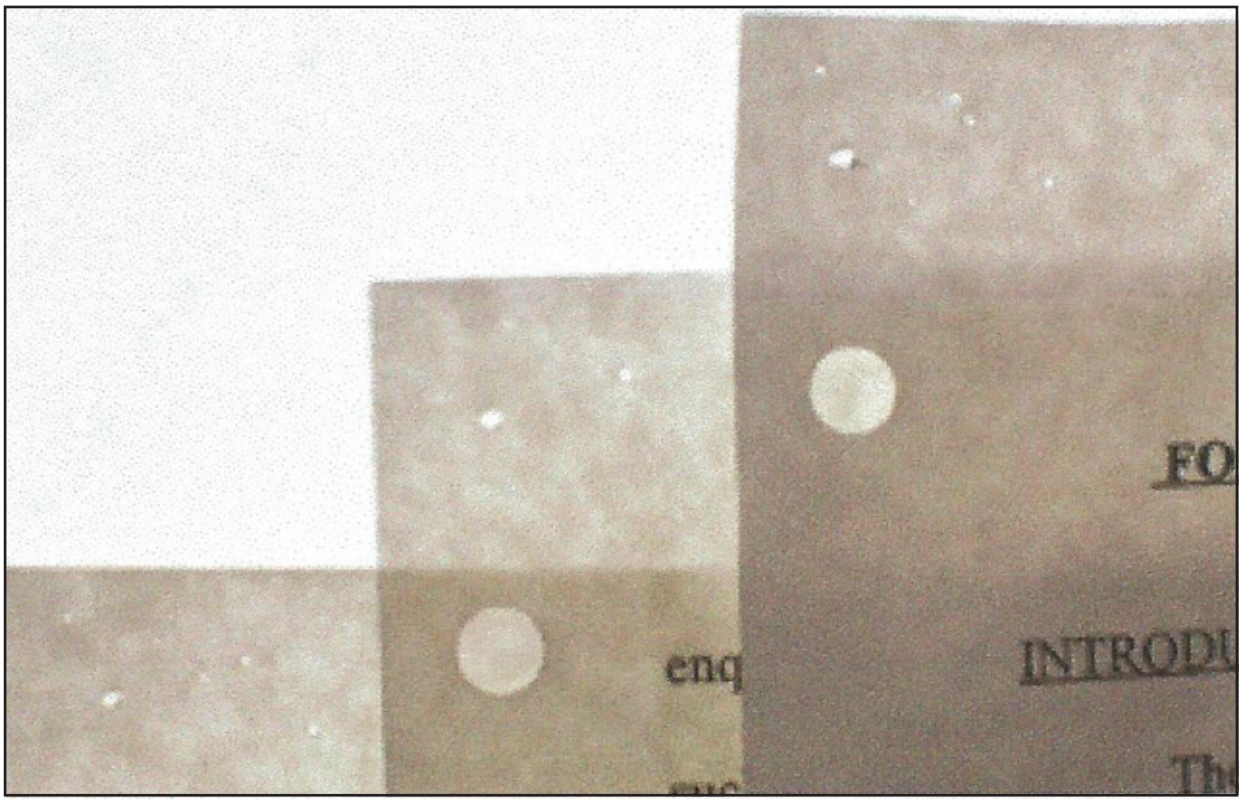

Fig. 1.—Staple hole examination

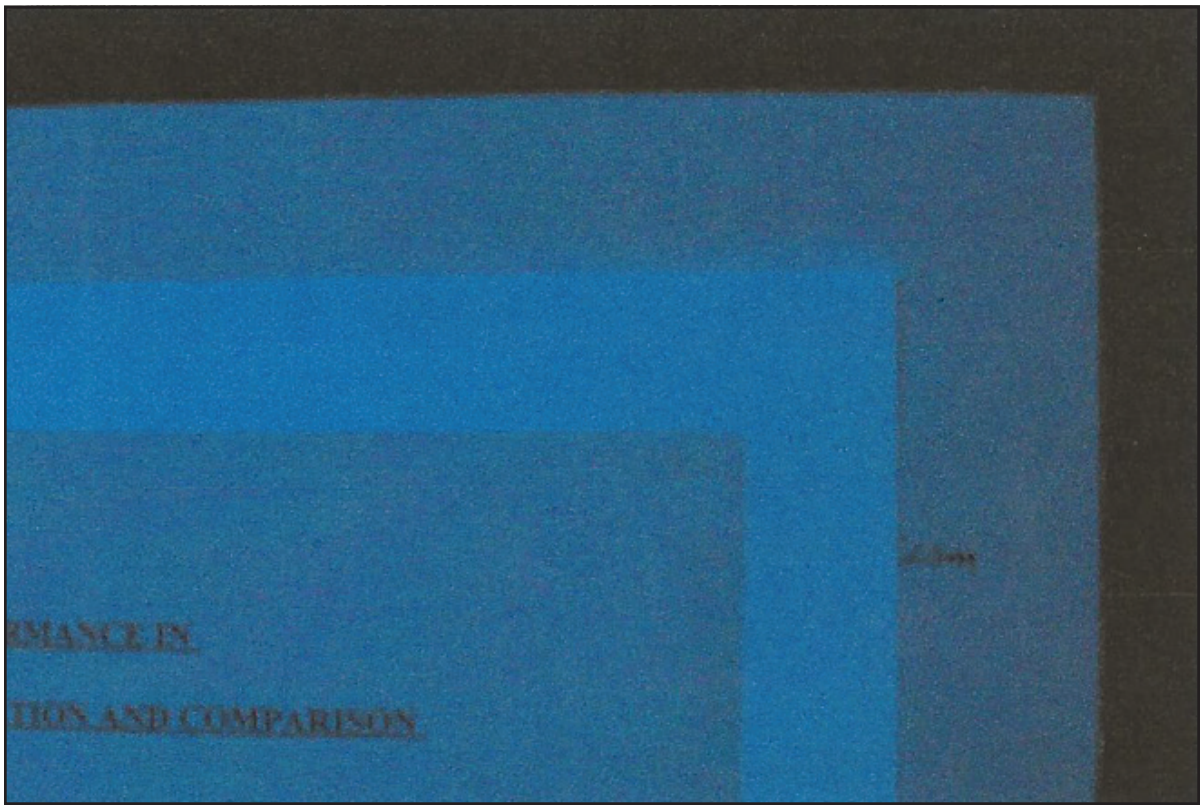

Fig. 2.—Ultraviolet examination

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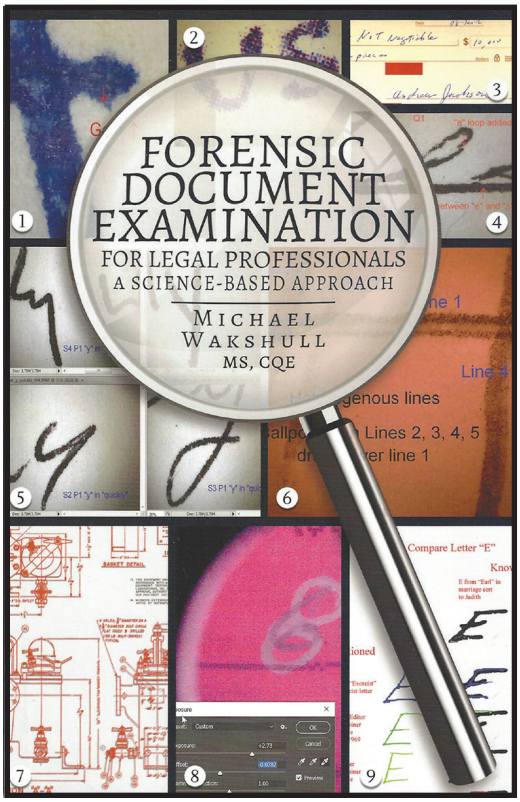
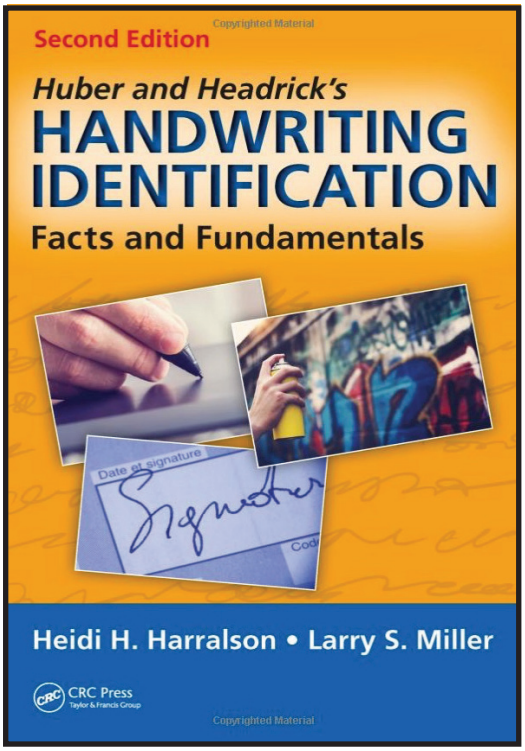
they arrive at their opinions. Readers learn the types of cases document examiners investigate, how they can partner with an examiner to develop their case, and what deliverables to expect.

The book covers topics of handwriting and signature authentication, altered documents, tools used by forensic document examiners, and other aspects for which a document examiner may be needed for a legal case. An overview of standards used and legal cases establishing expert witness testimony is offered. The need for following standard methodologies and proper reporting techniques is emphasized.

The book offers suggestions for effectively vetting a prospective document examiner and cross-examining an opposing document examiner. As regards the former issue, the author provides a series of questions that should determine whether the person is proficient in the latest techniques and adept at reporting results. Knowing the techniques and strategies behind this discipline is crucial to selecting a proficient examiner.





Heidi H. Harralson and **Larry S. Miller** of East Tennessee University have co-authored *Huber and Headrick's Handwriting Identification: Facts and Fundamentals, Second Edition* (CRC Press, Boca Raton, FL, 2018).

Huber and Headrick's classic book on handwriting identification has been in print since 1999. This second edition brings the text up to date with information about methods and research that have developed in document examination over the past 20 years.

The authors have attempted to fulfill Tom Headrick's wish that the original text would be augmented and revised over time. Although they state in their preface that they have maintained much of the original text, they have removed many of the personal asides present in the original book. In many instances they have updated language to be more "politically correct." For example, the chapter originally titled "Deafness and Sightlessness" is now "Visual and Hearing Impairment" and references to "sexual indicators" in handwriting have been removed.

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In their preface, Harralson and Miller write, "Huber and Headrick voiced their concern about the scientific limitations in handwriting identification in their original work. Many of their questions and concerns have been addressed placing handwriting identification as a viable science in forensics." Harralson and Miller have made a concerted effort to add material which reflects developments in the field of forensic handwriting examination since the 1999 publication of Huber and Headrick's book. They have included approximately 200 new references to updated research throughout the text and refer to ASTM and SWGDOC standards. They incorporate and discuss studies that support the scientific basis of handwriting examination in the chapter "Science and Handwriting Identification."

The text offers new information regarding writing postures, writing instruments, and spatial limitations in the chapter "Intrinsic Factors Influencing Handwriting" and presents new information pertaining to handwriting and electronic media as well as updated material elsewhere in the text. The publication is greatly enhanced by the addition of approximately 100 new illustrations which will undoubtedly prove beneficial to readers, particularly those new to the field of forensic handwriting examination.

Changes to the structure of the book have been made, with some sections having been moved to different chapters. For example, the sections "Science and Scientific Method" and "What Is Science?" from the original work have been merged into the section "Defining Science." Such consolidations reduce repetition and omit unnecessary quotations. Additionally, chapter titles have been changed from questions to generally improved and modernized descriptive headings.

The authors consider their book "a work in progress" since handwriting examination methodology is in transition. They foresee future successive and improved editions.

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Edited by Anne Smith

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Acree, Mark A. The presence of stains on a suspected suicide note and their significance in death investigation. 29(1):14-23, 2007-8.

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*The citations in this index were drawn from *The QDE Index: A Guide to Periodical Articles in English on Document Examination, Handwriting Expertise and Expert Testimony* by Marcel B. Matley of San Francisco, CA.

As a self-directed effort, Marcel compiled, edited and published *The QDE Index*. It is the most comprehensive collection of titles, authors and case law in the field of questioned document examination. Containing 4,700 citations covering 3,750 papers published in 450 journals, the citations are drawn from forensic, legal, academic and popular press journals. Marcel has added valuable annotations to many of the entries.

The QDE Index is available as free access on the internet at http://www.archive.org. Use search term "Marcel Matley."

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